DEC. 12 1958

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

Industry wins in Memphis gas case 8
What is Justice Dept.'s oil target? 9
Oil needs to spend $140-billion by '67 ... 10
The case for overseas oil depletion 14
In-situ combustion can be profitable 17
Coming: Improved salt water disposal ... 22
Plymouth Oil tries new ACT system 26
Steel making: A new market for oil? 32
Fuel cell termed 'extremely promising' ... 36
More storage gives gas a new push ... 43, 45
Venezuela's newcomers start payout 48

Price 50 Cents

STEVENS RICE
UNIV MICROFILMS
313 NORTH 1 ST
ANN ARBOR MICH A

Let your plans include the specialized knowledge and resources of the nation's Pioneer Oil Bank.

84th Year of Dependable Service

FIRST NATIONAL BANK IN DALLAS

Member Federal Deposit Insurance Corporation

...another job completed
ahead of time
and at a
substantial
savings!

...and that's our business

BROWN & ROOT, INC.
Engineers - Constructors
POST OFFICE BOX 3, HOUSTON 1, TEXAS

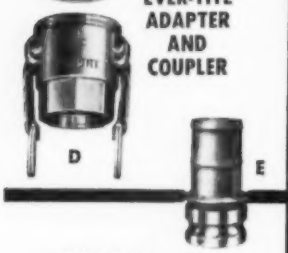
No. One Wall Street, New York 5, New York
Brown & Root de Mexico, S.A. de C.V., Mexico City, Mexico
Brown & Root Construcciones, S.A., Caracas, Venezuela
Brown & Root, Ltd., Edmonton and Calgary, Alberta, Canada
Brown & Root, S.A., Panama City, Panama
Brown & Root, LTDA., Santos, São Paulo, Brazil

CABLE ADDRESS—BROWNBILT

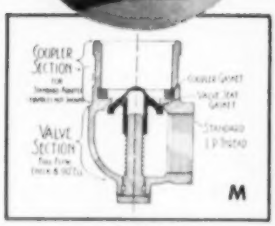
EVER-TITE — The Best In Quick Couplings

EVER-TITE STANDARD ADAPTER AND COUPLER

EVER-TITE ADAPTER AND COUPLER



EVER-TITE SHANK HOSE COUPLING



EVER-TITE COUPLING ELBOW AND CHECK VALVE UNIT

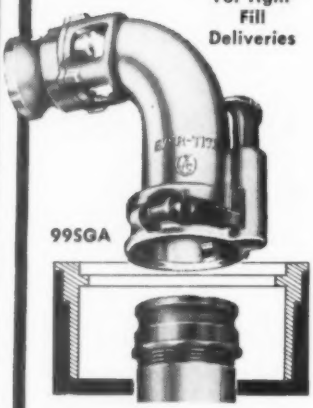
Here is why EVER-TITE assures *speed... safety... economy*

Superior quality forged body —precision machined
Uniform wall thickness —no weak spots
Extra heavy reinforcing rim
Larger diameter cam ears for longer service life
Extra Hi-Strength forged handles —greater economy
Stainless Steel pins —greater safety and longer service
Uniform heavy wall thickness —no weak spots
Recess retains gasket in coupler and assures proper placement
Superior quality forged body —precision machined —accurate tolerances

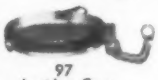
You save time in deliveries—and reduce wear and maintenance costs—when you use Ever-Tite Couplings. Ever-Tite gives you the finest in *quality* and *engineering*. And Ever-Tite gives you *tight* connections every time—because every Ever-Tite has positive gasket compression that is dependable under *all* conditions. Get Ever-Tites—and get the best in quick couplings. There is an Ever-Tite for every need. Ask your distributor.

Brass • Stainless Steel
Aluminum • Malleable Iron
Other materials available on request

For Tight Fill Deliveries



EVER-TITE "99" COUPLER with Sight Gauge



97 Locking Cap

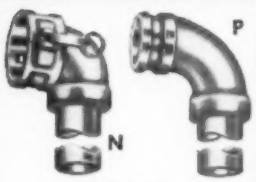
97 Twisting Cap

97 Adapter

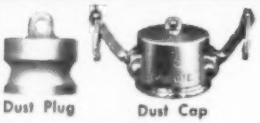
No. 97 Ever-Tite Fill Cap

97 Adapters for Ever-Tite "99" Coupler

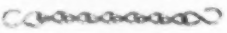
EVER-TITE ADAPTER AND COUPLER FOR TANK CAR UNLOADING



EVER-TITE 90° FULL-FLO ADAPTER AND COUPLER
Drop Tubes or Pipe Threads



EVER-TITE DUST PROTECTORS



Chain for attaching Dust Caps or Dust Plugs to adapters or couplers

EVER-TITE SPOOL ADAPTER

EVER-TITE M. I. D.* COUPLER
*Maximum inside diameter

EVER-TITE GASKETS **EVER-TITE HANDLES**

EVER-TITE COUPLING CO. INC., 254 WEST 54TH STREET, NEW YORK 19, N. Y.

PETROLEUM WEEK

Publisher—Harry L. Waddell

Editor—LeRoy Menzing

Assistant to the Publisher—William F. Bland

Managing Editor—Richard M. Machol

Senior Editors—Glenn Green, Jr. (Houston), Wanda M. Jablonski, Robert E. Spann, John Barton, Robert L. Davidson, Halsey Peckworth

News Editor—Clyde LaMotte

Foreign News Editor—Georgia Macris

Assistant Editors—John Paluszek, Ade Ponikvar, Betty Deane Suiter

District Editors

Houston—Eugene Bush *Dallas*—Kemp Anderson, Jr. *Chicago*—Stewart W. Ramsey
Tulsa—William P. Sterne *Bakersfield*—William Rintoul *Los Angeles*—John Kearney

Presentation—William A. Caperell, Jr., director; Mildred Schutte

Editorial Assistants—Larry Christiansen, Jr., Jim Bower, Carole A. Masucci, Dorothy Miller (Chicago), Richard Morey

Domestic News Service

Chicago Bureau—Elizabeth L. Wilson
Cleveland Bureau—William G. Meldrum, chief, Violet Bashian
Dallas Bureau—Mary Lorraine Smith
Detroit Bureau—Donald MacDonald, chief, Nancy Ann Moore
Los Angeles Bureau—Michael Murphy, Jack Meyer, Marvin Petal
San Francisco Bureau—Margaret Ralston, chief, Jenness Keene, Sue Johnson
Washington Bureau—George B. Bryant, Jr., chief, Glen Bayless, Dean Reed, A. R. Patla, D. O. Loomis, Roy Calvin, Ernest Conine, Arthur Kraft, Seth Payne
Correspondents: Albuquerque, Anchorage, Atlanta, Austin, Baton Rouge, Billings, Bismarck, Calgary, Casper, Cheyenne, Corpus Christi, Denver, Edmonton, Evansville, Farmington, Ft. Worth, Honolulu, Jackson (Miss.), Little Rock, Memphis, Midland, Mobile, Montreal, New Orleans, Odessa, Oklahoma City, Ottawa, Philadelphia, Phoenix, Pittsburgh, Portland (Ore.), Regina, Sacramento, St. Louis, Salt Lake City, San Diego, Seattle, Shreveport, Spokane, Toronto, Vancouver, Winnipeg

Foreign News Service

Middle East Bureau—Onnic Marashian, chief
Caracas Bureau—John Pearson, chief
Bonn Bureau—Morrie Helitzer, chief, Silke Brueckler, Jim Morrison, Helga Benecke
London Bureau—Robert Gibson, chief, John Tunstall, John Shinn, Derek Barlow
Mexico City Bureau—Peter Weaver, chief, Lourdes Marin
Moscow Bureau—William J. Coughlin, chief
Paris Bureau—Robert E. Farrell, chief, Helen Avati, Arthur Erikson
Tokyo Bureau—Sol Sanders, chief, Toshiko Matsumura, John Yamaguchi
Correspondents: Amsterdam, Ankara, Beirut, Bogota, Bombay, Brussels, Buenos Aires, Cairo, Djakarta, Geneva, Guatemala City, Havana, Karachi, La Paz, Lima, Manila, Melbourne, Rabat, Rangoon, Rome, San Jose, Sao Paulo, Teheran, Vienna
Manager, McGraw-Hill World News Service—John Wilhelm

Economics Staff

Dexter M. Keezer, director; Robert P. Ulin

Business Department

Advertising Sales Manager—Ervin E. DeGraff; *Western General Manager*—Donald O. Hanson: *Acting Circulation Manager*—Harriet Costikyan; *Promotion Manager*—N. F. Cullinan; *Advertising Service Manager*—John E. Thompson; *Research Manager*—Leo M. Murray; *Reprint Service*—Mary C. Rudloff; *Southwestern Research Manager*—George Reid

Other McGraw-Hill Petroleum Publications

NATIONAL PETROLEUM NEWS PLATT'S OILGRAM NEWS AND PRICE SERVICES

PETROLEUM WEEK — A McGRAW-HILL PUBLICATION — **December 12, 1958**

Number of copies of this issue printed: **48,105** **Vol. 7, No. 24**

Published weekly by McGraw-Hill Publishing Co., Inc. James H. McGraw (1860-1948), founder. Publication office: 871 N. Franklin St., Chicago 10, Ill. See panel below for directions regarding subscriptions or change of address.

Executive, Editorial, Circulation and Advertising offices: 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. Officers of the Publications Division: Nelson L. Bond, President; Harry L. Waddell, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

Subscriptions are solicited only from executives, supervisors, and such technically trained personnel as engineers, geologists, chemists, etc., in the oil and natural gas industries, who are engaged in exploration, drilling, producing, processing, petrochemical manufacture, transportation, or wholesale marketing. **Position and company connection must be indicated on subscription orders.** Subscription rates for all countries: $3 per year. Single copies 50¢. Second class postage paid at Chicago, Ill. Printed in U.S.A.

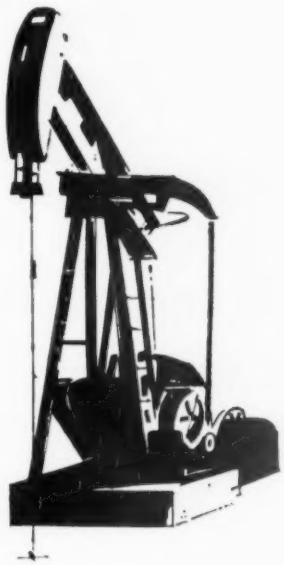
Title registered in U. S. Patent Office. © Copyright 1958 by McGraw-Hill Publishing Co. All rights reserved.

Unconditional guarantee: Our primary aim is to provide subscribers with a useful and valuable publication. Any comments or suggestions for improvement will be most welcome. On written request from any subscriber, the publisher agrees to refund the unused portion of the subscription price.

Subscriptions: Address subscription correspondence and change of address to Fulfillment Manager, Petroleum Week, 330 W. 42nd St., New York 36, N. Y. On address changes please give old and new address and zone numbers, if any, and enclose an address label from a recent issue if possible. Please allow one month for change to become effective.

Postmaster: Please send form 3579 to Petroleum Week, 330 W. 42nd St., New York 36, N. Y.

if oil production is YOUR business



helping you is OUR business

Here, at Republic National Bank, the combined experience and proved performance of the South's largest and most active Oil Department are concentrated on better service to the oil producer. However complex your production financing problem, you'll get expert attention to your requirements at Republic. How may we help you?

ADDED STRENGTH YOU CAN BANK ON

CAPITAL FUNDS OVER $90,000,000 LARGEST IN THE SOUTH

REPUBLIC National BANK of Dallas

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

A TURN FOR THE BETTER IN VALVE DESIGN

The rotating seat shown here is making valve history. It's the central feature of the new Cameron Gate Valve. Each time the valve is operated two of these rotating seats turn up new sealing surfaces and a beautiful new profit picture.

People who use valves and the people who specify them are taking a sharper look at the costs after purchase. Let's face it. When you buy a valve for drilling, production or processing service—what are you buying? Actually you are purchasing operating cycles—but how many, for how much?

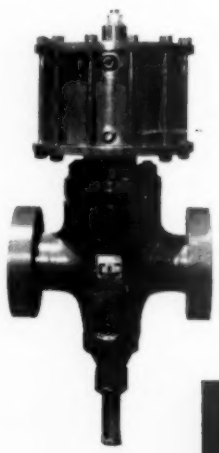
To determine this may be easier than you think. Valve prices are not too divergent. All acceptable valves will hold pressure and release it when new. Right here, however, radical differences take place. Once in the line what does it cost to keep a valve working efficiently? Some valves require a continuous lubrication program, which immediately increases the cycle cost. Some valves must be removed from the line and taken to a shop when major repairs are necessary. Many are slow and hard to operate, adding man-hours to the cycle cost.

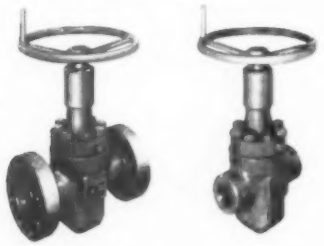
If the valves you are about to purchase have any of these disadvantages, CALL ON CAMERON. We have good news for you. Our new gate valve for water, oil, gas, and mud is making friends and saving money because it costs far less per operating cycle than any valve on the market. The reason is simple, the Cameron Gate Valve with its rotating seats spreads wear over the entire sealing area rather than concentrating it on one spot. All other valves concentrate wear in one area every time they operate.

If you want the most operating cycles without maintenance — the lowest cost per cycle during the entire life of the valve, take a turn for the better, take Cameron Gate Valves.

Longest maintenance-free operation of any valve on the market today.

Easy, in line repair with this simplified gate "package."





A full range of sizes and pressure ratings is available including hydraulically and air operated valves for remote controls and automated circuits.

Cameron

IRON WORKS, INC.

P. O. Box 1212 - Houston, Texas

Export Office: 7912 Empire State Bldg., New York City. In England: Cameron Iron Works Ltd., 76 Grosvenor St., London W. 1 England.

60-Second Summary / WHAT'S HAPPENING IN OIL

December 12, 1958

dept/INDEX

Production	17
Transportation	43
Processing	32
Marketing	54
Washington	14
Statistics	59
The Market Trend	60
Key Prices	61
Editorial	64
International	48
Personals	62
Service & Equipment	58

"Natural gas companies should not be precluded by law from increasing prices . . . (when) . . . economically necessary." So ruled the Supreme Court this week in striking down the "Memphis" decision, which required customer approval for gas pipeline rate hikes. . . . p. 8

•

Thermal recovery of oil can be "reasonably attractive," according to Socony and Magnolia spokesmen. Operating economics appear favorable in reservoirs with oil content as low as 1,000 bbl. per acre-foot. . . . p. 17

•

Oil's capital spending should run $140-billion between now and 1967 if it is to meet demand, according to a revised study by The Chase Manhattan Bank. . . . p. 10

•

What is the Justice Dept.'s goal in its suit against Jersey Standard and Kentucky Standard? It could be, some say, simply a single-shot effort. Or it could be the beginning of a broader attack on supply setups in general. . . . p. 9

•

Oil companies appear reluctant to be invaded by the "universal" credit cards. They're not convinced the newcomers could handle the high-volume, low-unit amounts involved in the industry. . . . p. 54

•

Jersey Standard and Shell have signed "service lease contracts" with Argentina. The contracts, the first with major international firms, assure a $75-million minimum investment in oil development. . . . p. 9

•

The supply and demand of rotary rigs may come into balance within two years. Chances are the number of rigs will decline, but they will make more hole per rig. . . . p. 12

•

Oil and gas may have a whole new market opening for them in steel-making if the H-Iron process catches on. It's based on oil processing knowhow and would use petroleum-derived hydrogen as a reducing agent for iron ore. . . . p. 32

•

The payout has started for 27 newcomers that acquired concessions in Lake Maracaibo in the past two years. The firms now have 200,000 b/d of export capacity. . . . p. 48

•

Texas Eastern is offering gas customers three-year, maximum delivery contracts during peak winter months. It is able to do this because of increased underground storage capacity in eastern areas. . . . p. 43

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

December 12, 1958

Mandatory—rather than voluntary—oil imports controls are being strongly considered by the Administration. The reason: The Justice Dept. is sharply questioning the legality of some phases of the proposed voluntary plan—particularly the proposal to allot 60% of imports to "historic" importers and divide the remaining 40% on a refinery-run basis.

Some attorneys—in and out of the government—have been skeptical all along of any voluntary plan, saying that any time companies agree to joint action which might affect supplies, markets, or competition, they stand to run afoul of antitrust laws.

•

At midweek, the government was facing three principal alternatives to mandatory controls:

- **Continue the present voluntary program temporarily.** Since it has gone along this far with the old plan, the Justice Dept. might be willing to see it extended, at least until a "safer" plan could be drafted.
- **Abandon all efforts to restrict oil imports.** This, most observers agree, is unlikely. If it did happen, there would surely be a move to get Congress to set imports limitations.
- **Substitute tariffs for controls.** These probably would be on a graduated basis.

•

Utah will limit oil output in the Aneth area to specific gas-oil ratios. Initially, proration will be pegged to El Paso Natural's take of gas. Later, it will also be tied to bottomhole pressures. Operators in the Aneth pool were told to submit pressure-maintenance programs by Mar. 1.

•

Indiana Standard will deal in crude and products worldwide where "profitable opportunities" exist. Amoco Trading Corp. has been formed to complement activities of Pan American International and other Indiana affiliates.

•

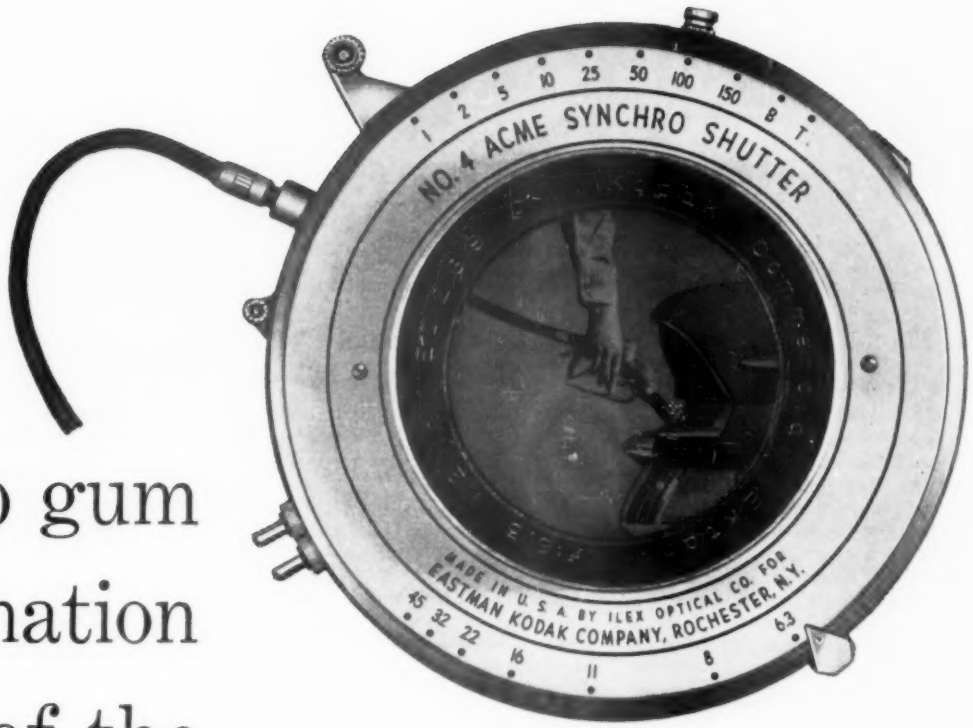
Venezuelan oil workers turned the tide to elect veteran politico Romulo Betancourt as president in last Sunday's close election contest. Betancourt, who gave final shape to Venezuela's 50-50 oil profit-sharing formula over a decade ago, has promised higher taxes on oil companies, a ban on new oil concessions, and formation of a national oil company.

•

Replacement of Brazil's two top oil administrators this week probably won't change the oil monopoly policy. Col. Idalio Sardenberg has replaced Col. Janary Nunes as Petrobras president, and Henrique Flues has been made president of the policy-making National Petroleum Council.

•

Signal Oil & Gas will rebuild and expand Hancock's Signal Hill (Calif.) refinery, damaged by fire in May. That was decided this week after stockholders approved merging Hancock into Signal on Jan. 1.


NO. 4 ACME SYNCHRO SHUTTER
1 2 5 10 25 50 100 150 B T
MADE IN U. S. A. BY ILEX OPTICAL CO. FOR EASTMAN KODAK COMPANY, ROCHESTER, N.Y.
45 32 22 16 11 8 6.3

keep gum formation out of the picture with...Tenamene

EASTMAN GASOLINE ADDITIVES

Your gasolines deliver the performance you build into them when Tenamene additives are present to guard against power-robbing gum formation.

The Tenamene line includes every principal type of gum inhibitor in commercial use today.

The quality and uniformity of the Tenamene additives are assured since Eastman manufactures all of the gasoline additives it supplies and exercises precise control over every step in the manufacture of them.

On-the-spot technical service is available from qualified Eastman petroleum specialists to help you achieve maximum performance from these dependable additives.

For more information on Tenamene additives and the service that backs up their proper use, contact our local representative or write to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

SALES OFFICES: **Eastman Chemical Products, Inc.,** Kingsport, Tennessee, New York City, Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle, Denver, Spokane, Phoenix.

PETROLEUM WEEK
December 12, 1958

Supreme Court Ends Memphis Rule

- **The gas industry, beset by adverse court decisions in recent years, has finally won a highly important one.**
- **The high court, reversing a lower court ruling in the 'Memphis case,' cleared the way for a return to long-standing procedures in gas rate-hike applications.**

The U.S. Supreme Court has struck down the "Memphis case" decision, thereby removing the threat of a crippling impact on the natural gas industry.

In a 5-to-3 vote this week, the high court overruled the U.S. Court of Appeals for the District of Columbia. That court had held, in effect, that a pipeline company could not ask the Federal Power Commission for increased rates without prior approval of its customers.

The only alternative, under a Memphis ruling, was a request for a formal FPC hearing—a procedure that would take two or three years to complete, while the lower rate continues.

Now, in most cases, a pipeline company will be able to put price hikes into effect after a six-month waiting period—as had been the practice before the Memphis case controversy developed.

The long-standing procedure was this:

A pipeline firm filed a rate hike with the FPC. The agency then suspended the hike for six months. If, during that six-month period, FPC took no further action, the rate increase automatically went into effect.

Even after that, FPC could call for hearings and, if it saw fit, revoke the increase. As a matter of practice, this was never done.

The Supreme Court made it clear that its ruling applies only to the commonly used service-type contracts, and not to the rigid contract of the earlier "Mobile case."

In the Mobile ruling, the pipeline company had a contract with the City of Mobile under which it would supply a specified amount of gas for ten years at a specified price. No procedure for a price change was specified in the contract.

When the pipeline company filed for a rate increase, the courts eventually ruled that FPC had no authority to permit it.

Its reasoning: In a two-party contract, neither party could change the terms without the permission of the other.

After the Mobile decision, the City of Memphis appealed an FPC order which had allowed a $10-million annual rate increase for United Gas Pipe Line Co.

A lower court, applying the Mobile decision, struck down the rate increase. This cast uncertainty over all types of price hikes.

The decision was appealed, setting the stage for this week's highly important decision.

The Supreme Court pointed out that contracts in the Memphis case were "vitally different" from those in Mobile.

It noted that in Memphis, United did not have a rigid-type contract. Instead, it had the more usual service-type contract.

Under this contract, a rate schedule is set up. It usually calls for periodic increases in prices, or has some provision for permitting price adjustments. A common phrase in such contracts is that the rates filed with FPC will be applicable.

These provisions for rate changes are inserted to give some flexibility to long contracts.

The Supreme Court majority said that "business reality" demands a provision for flexible-type contracts. It reasoned thus:

"Natural gas companies should not be precluded by law from increasing the prices of their product whenever that is the economically necessary means of keeping the intake and outgo of their revenues in proper balance . . . ."

Obviously, the court was not opening the door to "runaway" prices, but was leaving open a means of obtaining price hikes prompted by economic conditions.

The dissenting members of the Supreme Court said the majority's decision would "make a shambles" of the Natural Gas Act.

The dissent, written by Justice William O. Douglas, said the action would end effective FPC control over natural gas prices.

It pointed out that even if FPC should investigate and strike down a price hike, the company affected could simply file a new rate and, after six months, it would become effective. Then the lengthy hearings procedure would have to be gone through again.

The minority opinion may set the stage for anti-oil congressmen to seek new controlling legislation.

But, if that move should develop, the industry will be able to point to the "business reality" approach used by the majority.

Clearly, this week's decision was a shot in the arm to the gas industry. Already hampered by the Phillips case decision, it had been staggered by the original Memphis ruling.

As a result, expansion momentum had slowed. Many companies either canceled or modified their plans. Others decided to mark time until the Supreme Court had ruled.

Now pipeline companies will be able to plan ahead. For example, the court's action helps restore their ability to get financing.

This had become a problem because of the uncertainty over future revenues.

Also, the companies will have more investment capital as a result of increased revenues from rate hikes.

Too, it removed the threat that past rate hikes might have to be refunded. This would have been a heavy, multi-million-dollar blow.

Most of all, gas industry officials feel that the Supreme Court's decision might mark a turning point in regulation.

At least, it seemed to them, a limit had been reached in how far regulation could be carried.

They feel that if the court's "business reality" concept is applied in the future, the gas industry will be able to make real progress.

In Jersey-Kentucky case . . .

What Is the Real Target?

There was considerable industry speculation this week over the real target the Justice Dept. is aiming for in its suit against Jersey Standard, Esso, and Standard of Kentucky.

The antitrust suit was filed last week (PW—Dec.5'58,p11). Basically, it contains two charges of conspiracy:

- Conspiracy to divide marketing territories.
- Conspiracy to prevent competition in supplying Kentucky Standard with petroleum products.

Some observers fear the case could have far-reaching impact—even extending to many supplier-jobber relations.

They note that one of the main points of the Justice Dept. charge is that Jersey Standard (through Esso) supplies 80% of Kentucky Standard's gasoline requirements.

This sort of arrangement in itself is not unusual, they emphasize. In many instances, a supplier may provide 100% of a marketing company's products. Therefore, they say, the Justice Dept. could find many similar targets.

However, other observers minimize the possibility that the suit signals a round of similar cases against other companies in other areas.

They feel that other factors—including the fact that Kentucky Standard was originally a part of the parent Standard Oil Co.—make this an individual case that could not be readily duplicated elsewhere.

In short, they feel that what the government is alleging amounts to a charge that Esso and Kentucky Standard have managed to find a way to avoid the effect of the 1911 dissolution decree.

One Justice Dept. target may be the continuing type of contract which, it says, exists in this case and results in closing the door to others who might supply Kentucky Standard.

Qualified observers say that a contract with a specified length permits other potential suppliers to make an effort to get the business when the existing contract expires. But, a contract for an indefinite period might come under attack on the grounds that competitors never get a chance.

The case may also crystallize what the government needs to show to prove whether a "conspiracy" actually exists.

Obviously, any evidence showing that two companies agreed to a plan to eliminate or reduce competition illegally would be enough.

But the government is likely to base its case on what it considers as evidence that the end results were the same as those of a conspiracy—whether or not the companies actually conspired.

In effect, it is expected to make this presentation:

- Esso supplies the major share of Kentucky Standard's gasoline requirements.
- No Jersey affiliate markets gasoline and other products in Kentucky, Mississippi, Georgia, Alabama, or Florida.
- Kentucky Standard does not market outside those five states.

This, the Justice Dept. implies, indicates agreements not to "invade" each other's territory.

What would be the impact on Kentucky Standard and Esso if the government were to win the case?

Obviously, Kentucky Standard would have to find another supplier. And this might not be so easy as it sounds.

Kentucky Standard might be virtually forced into becoming an integrated firm to avoid further charges.

As for Jersey Standard and Esso, they apparently would face a decision as to whether to try to line up other marketers in that area or to market there directly.

Majors Accept Argentine Terms

The "Big Two" of the international oil industry—Jersey Standard and Shell—have found the terms of Argentina's "open door" oil policy acceptable.

The government has announced the signing of "service lease contracts"—the Argentine euphemism for concessions—with affiliates of the two international majors.

They differ in some particulars from the three contracts signed earlier this year with other U.S. firms. But the significance lies in the fact that two major international companies have found Argentina's terms acceptable.

Both companies are long established in Argentina, and have integrated operations there—including old, limited producing concessions.

The announcement of the contracts last week was timed to dampen the psychological shock to Argentine public opinion over the news—released simultaneously—that the $800-million package deal that was offered by the Atlas Corp. now looks virtually "hopeless."

Two smaller U.S. companies—Signal Oil & Gas and Union Oil & Gas of Louisiana—have now acquired interests in the $100-million contract awarded earlier to Carl M. Loeb, Rhoades & Co., it was announced last week.

Signal's newly formed South American Development Co. has been assigned 20% interest. Another 16⅔% has been assigned to Union's new Unola de Argentina, Ltd.

The remaining 63⅓% is held by L. R. Development, Ltd., a newly formed operating entity incorporated in Canada. President is Bruce C. Clardy, a former president of Indiana Standard's Service Pipe Line Co., Tulsa.

The new contracts, with Jersey's new Esso Argentina, Inc., and with Shell affiliates, assure a minimum investment of $75-million for oil development within ten years, plus $23-million for pipeline financing from Esso.

The two new contracts are alike only in that they specify minimum investments for the initial ten years, and provide for a subsequent 20-year producing period. But there the similarity ends.

Esso will be reimbursed in Argentine pesos for oil produced under its contract.

The fee payable will be related to posted prices in Venezuela, the U.S. Gulf Coast, and the Persian Gulf.

Initial fees, Jersey says, will be the peso equivalent of $11.50 per cubic meter (6.3 bbl.) for the first 2,000 cubic meters per day of production; $11.25 for the next 2,000; and $11 for all above 4,000 cubic meters per day.

The Esso contract is aimed at rapid development of oil and gas in Neuquen province, where oil output now amounts to some 12,000 b/d.

One Esso affiliate will continue to operate its present small concessions there, but has agreed to change their status from perpetuity to the life of the new contract. Other Esso producing concessions in Salta province in northern Argentina are voluntarily ceded without charge to YPF.

Esso's contract covers an initial 1,185,000 acres, to be reduced to

25% of the original area by the end of the tenth year. It also gives Esso the option of withdrawing from the agreement at the end of the third or sixth year.

Esso's minimum-investment commitments for exploration and production total $47-million for the whole ten-year period, broken down as follows: $10-million in the first three years; $13-million in the second three years (after which the area is to be reduced 50%); and $24-million in the next four years if reserves sufficient for 25,000 b/d production have been proved. This commitment is reduced proportionately for lesser volumes.

Esso will complete development of the 25% acreage remaining for the last 20 years of the contract. No investment is specified for that period.

Esso will be repaid in dollars over a 30-year period, with 5% interest, for financing and building the $23-million pipeline for YPF. This will run 390 mi., from the Neuquen field to the coast at Bahia Blanca.

Jersey said last week that the parties to the new pact have agreed that "from time to time" they will consider extending operations to other areas.

Unlike the Esso pact, Shell's contract provides for payment in oil, with Shell getting half the oil produced—after reimbursement of some costs.

The Shell pact covers an unexplored area in the Rio Negro region near Bahia Blanca, including adjoining offshore waters.

The initial area is 7,360,000 acres, to be progressively reduced to 10% of the original tract.

Minimum investment will be $28-million (in sterling) over a ten-year period.

Shell says expenses incurred in carrying out operations leading to full development of any oil discoveries will be repaid as oil is produced. Oil equal in value to those expenses will be turned over to the Shell refining and marketing affiliates in Argentina to meet their local requirements.

After that, the balance of oil produced will be split between YPF and the Shell companies.

Meanwhile, Argentina has prepared a plan to call for international tenders to develop the southern flank of the Comodoro Rivadavia field—to act as a substitute for the apparently defunct deal with the Atlas Corp. group.

According to Sabato, development of that area, together with the five contracts already concluded, will make Argentina self-sufficient in oil within three years.

Oil Will Need $140-Billion

That's the prediction of The Chase Manhattan Bank concerning oil capital expenditures to be made by 1967.

The oil industry's capital expenditures between now and 1967 will have to be about twice those of the past decade if it is to meet anticipated demand.

That's the estimate of the Petroleum Dept. of The Chase Manhattan Bank, which foresees the need for the industry to spend $140-billion in the search for and development, processing, and transportation of oil and gas in the free world by 1967.

Capital outlays in the free foreign areas during the ten-year period that started with 1958 will have to rise 140% over the previous decade, the bank figures.

And in the U.S., the increase in the current decade will have to run 70% more than the ten-year period that ended with 1957.

Demand for liquid petroleum in the free world is expected to grow at the rate of 6.3% per year, reaching 29.5-million b/d by 1967. Slightly less than half of this will be in the U.S.

This anticipated rate of growth is slightly less than the 6.6%-per-annum of the 1919-1956 period.

Oil demand in free foreign areas is expected to surpass consumption in the U.S. by 1967. Demand in the former areas is estimated to grow at a rate of 7.7% per year, about equal to the long-term past trend, and reach 15.1-million b/d by 1967.

U.S. demand is predicted to grow at the rate of 5% per year, down one percentage point from the past trend, and to reach 14.4-million b/d by 1967.

Demand for gas in the U. S. by 1967 is expected to reach 17.2-trillion cu. ft., equivalent to almost 8-million b/d of oil, the bank predicts.

Gas demand in 1967 is expected to be filled by 16.2-trillion cu. ft. of domestic production and 1-trillion cu. ft. of imports. It will be equal to 26.5% of the total energy supply, compared with a 24.8% share at present (PW—Jun.13'58,p74).

While over-all demand for liquid petroleum will expand slightly more than demand for gas by 1967 (a 63.3% gain for oil vs. 61.3% for gas), gas will grow at a faster rate than oil in the markets where the two compete.

The bank estimates that, by 1967, the markets for which the two fuels compete (heating, cooling, and industrial use) will equal 13-million b/d of oil equivalent. The share to be captured by gas is expected to be 8-million b/d of oil equivalent.

The continued displacement of oil by gas, which yields relatively little revenue to the petroleum industry, may in the long run hamper an "adequate" exploratory effort, the bank warns.

"For the petroleum industry," the study notes, "natural gas constitutes a particularly vexing dilemma. . . . It is much too valuable to be ignored or wasted. Yet, when it is channeled into the energy market, it displaces oil, a fuel which returns to the industry much more revenue."

The bank figures that, because of the regulated status of gas, its average price at the wellhead is only one-fifth of the average crude price on an equivalent-heat basis.

"Pointing up the significance [of this] the average wellhead value per barrel of oil and gas combined, in terms of constant 1957 prices, has declined 13% during the postwar period," the bank comments. "This has happened because the production of the low-value gas hydrocarbons has grown more than twice as fast as the output of the higher-value oil hydrocarbons."

In the U.S., the economic limit of drilling costs per barrel of added liquid reserves may be fast approaching. This requires an upgraded exploratory effort and a reduction in drilling costs if oil is to operate within the current price framework.

The bank says that a higher price framework for oil is a dim prospect because of the lower cost of the "major portion of the oil outside the U.S., and the severe competition stemming from the exceedingly low wellhead price for natural gas."

Studies by the bank show that, over the next ten years, "an average of 3.3-billion bbl. [of reserves] added per year is the maximum that may be reasonably expected."

But on the basis of the actual finding rate in the postwar period, the bank notes, "the industry will need to step up sharply its rate of drilling before it can expect to achieve such large annual additions to reserves."

The bank estimates that the industry must drill 670,000 holes in the U.S., totaling 3-billion ft., between the beginning of 1958 and the end of

1967. By 1967, it adds annual drilling activity should approach 75,000 holes annually, or 350-million ft.

Domestic output of crude and gas liquids is expected to reach 10.8-million b/d by 1967, a gain of 35.4%. Free foreign output may jump 123%, to 18.7-million b/d.

"There is evidence that events of recent years have raised the level of apprehension relative to the continuing availability of oil in the Middle East," the bank notes. "But the producing countries in that region need the markets as much as the markets need the oil." Over-all reserves throughout the free world "leave no doubt about the ability to satisfy demand" in the immediate future years, the bank says.

If there should be any limitations to the availability of supply, it adds, they are likely to be "man-made."

Because the relative costs of finding and developing crude in the U.S. are higher than in most other areas, production here may not keep pace with demand.

The bank's data show that, since World War II, the rate of increase of capital expenditures in the U.S. exceeded "substantially" the growth of both demand and crude production.

D-X Sunray Gets New Outlets

D-X Sunray Oil Co. is sinking its teeth deeper and deeper into the Mid-Continent market. The latest bite was a big one: acquisition of Tidewater Oil Co.'s service stations and bulk plants in ten states.

D-X Sunray, refining and marketing subsidiary of Sunray Mid-Continent Oil Co., acquired the properties for "cash and other considerations." Financial terms were not detailed in the joint announcement by R. W. McDowell, D-X Sunray president, and Lloyd Armstrong, central division vice-president for Tidewater.

More than 500 Tidewater units—including bulk plants, service stations, dealers, jobbers, distributors, and jobbers' dealers—are involved in the transaction. The properties are in Oklahoma, Kansas, Missouri, Arkansas, Indiana, Iowa, Wisconsin, Minnesota, and North and South Dakota.

For Tidewater, the sale concentrates its gasoline and fuel oil markets closer to the company's East and West Coast refineries, at Delaware City, Del., and Avon, Calif.

Tidewater will continue to market its Veedol motor oil and greases in the Midwest, however, through independent distributors.

The transaction gives D-X Sunray 16 new bulk plants and 81 modern urban and highway service stations. Tidewater had built 74% of the stations since 1955.

D-X Sunray will move into the newly acquired outlets with its own brand name and products by Jan. 1, according to McDowell. By that date, the company plans to have at the stations its own motor oils, lubricants, and the new D-X Boron gasoline.

The move climaxes a hard-hitting market expansion for D-X Sunray, which has added more than 500 new or completely modernized stations in the past three years. Sales hit an all-time high in October (PW—Dec.5 '58,p59).

Just last week D-X Sunray acquired Gafill Oil Co., South Bend (Ind.) a large independent distributor. The company will operate as Gafill D-X Oil Co., handling D-X Sunray products in north-central Indiana and southwestern Michigan.

The Gafill acquisition gave D-X Sunray some 200 outlets and a 25-million-gal. business.

Unintentional Flare

An estimated 20-million cu. ft. daily of gas blew from this well after it caught fire last week. It is Skelly Oil's No. 2 Killingsworth in the Velma-Alma area of Stephens County, Okla. The fire also destroyed a $125,000 rig.

In petrochemicals . . .

Pemex Invites Foreign Capital

Mexico's new government says it will welcome minority participation of private foreign capital in petrochemicals though it is not changing anything in the recently-passed oil "nationalization" law.

Pascual Gutierrez Roldan, who became the chief of the government's Petroleos Mexicanos under the new President, Adolfo Lopez Mateos, told PETROLEUM WEEK that the only requirement is that foreign capital join with Mexican capital.

The new law, which took effect on the last day of the outgoing Ruiz Cortines administration, says that "the government will continue to control basic petroleum products in Mexico," according to Roldan.

Foreign capital can enter petrochemical operations with Petroleos Mexicanos, with some other Mexican government agency, or with a private Mexican company, as long as control is in Mexican hands, says Roldan.

Major petrochemicals, such as polyethylene, phenol, butadiene, ammonia, styrene, polystyrene, acetone, and several others, are the "petroleum derivatives" controlled by Pemex.

State, Not Pipeline, Pays Relocation Cost

From now on, any pipeline alterations forced by relocation of state highways will have to be paid for by the state itself—not by the pipeline company involved.

The U.S. Supreme Court this week refused to review a lower court decision that Louisiana had to bear the cost of an added pipeline encasement made necessary by highway construction in Assumption Parish.

The pipeline belongs to United Gas Pipe Line Co.

The high court, in effect, upheld the lower court decision that the highway construction work amounted to a relocation, so the state should pay for the pipeline alteration.

This should put an end to the growing number of pipeline company-state highway department disputes over such costs—a "major public relations problem" for pipeliners, as recently described by Philip S. Robira, manager of ad valorem taxes for Transcontinental Gas Pipe Line Corp.

What's New / IN THE INDUSTRY

Development of low-gravity domestic crude for making residual fuel is being "intentionally discouraged" by drastic price cuts, according to Marvin L. McCullough, president of the North Texas Oil & Gas Assn. His comment was made in a letter to D. A. Young, president of Sinclair Crude Oil Co. McCullough again asked Sinclair to rescind its Sept. 23 price reductions, which ranged up to 34¢ a bbl. for 20-gravity crude in Cooke and Grayson counties, Tex. He said it is a "fallacious" argument to say that residual fuel oil should be exempt from import controls due to an inadequate domestic supply.

•

Canada's deepest drilling venture is being abandoned at 15,283 ft. The test, Northern Foothills Agreement Group No. 8-28 Simonette River, in Alberta's foothills area, had been planned as a 16,500-ft. test of the Woodbend.

•

Gulf Oil Corp.'s world-wide crude production in 1959 is expected to average 1,348,000 b/d, up 10.9% over 1958. Next year's production rate will represent a 56% gain over 1955, W. K. Whiteford, president, said in New York. By regions, he said, 1959 production would be: U.S., up 9% over 1958 to 327,000 b/d; Venezuela, up 8.6% to 165,000 b/d; and the Eastern Hemisphere, up 12% to 856,000 b/d.

•

California may ask for higher royalties on state offshore leases. Both the governor-elect, Edmund G. Brown, and the controller-elect, Alan Cranston, say legislation to boost royalties may be presented to the 1959 legislature "if we can gather the facts fast enough." The proposal under consideration would abolish present cash bonuses, and would increase royalties, which now start at 16⅔%. Cranston says the bonus-and-royalty system favors big companies.

•

The world's largest tanker, the 104,500-ton "World Apollo," was launched in Japan last week. D. K. Ludwig's National Bulk Carriers, Inc. expects to place the ship in service next February. It will have a capacity of about 720,000 bbl.

•

As a hedge against inflation, Shell Oil Co. next year will help employees invest in common stocks, which normally rise in price during inflationary periods. Effective Jan. 1, the company is revising its Provident Fund, through which it matches employee savings of up to 10% of their wages. The change permits employees to direct that all or part of their contributions be invested in common stocks of other companies. Shell is also liberalizing its pension plan starting Jan. 1.

•

The Oil Industry Conservation Forum has formed five regional subcommittees to study conservation measures in various states. Each group will recommened to the forum needed modification and updating of conservation rules on an individual-state basis. Subcommittees are headed by: James E. Low, Amerada Petroleum (New Mexico-Arizona); Herbert Hunt, Hunt Oil (Rocky Mountain States); A. E. Chester, Magnolia Petroleum (Louisiana-Arkansas-Mississippi-Alabama); L. E. Fitzjarrald, Phillips Petroleum (Oklahoma-Kansas); and Harold Decker, Highland Oil (Texas).

INSIDE *Slant*

RIG BALANCE TWO YEARS OFF

A balance between supply and demand in the number of rotary rigs is expected within two years.

That's the opinion of Joe Zeppa, of Tyler, Tex., the new president of the American Assn. of Oilwell Drilling Contractors.

But at the same time, he doesn't think the improvement will mean a rise in the number of active rigs.

Instead, he feels that "actually there will be a decrease in the number of rigs because of wear and tear, obsolescence, and shipment of rigs abroad, and because some contractors will have gone out of business."

But the rigs operating will make more hole per rig.

Forecasts for this year, Zeppa says, show there will be about 10% fewer wells drilled than last year—yet there are 25% fewer rigs operating.

In addition, he notes that the average depth per well probably will be increased by about 100 ft.

"So I think," says Zeppa, "we can drill quite a few more wells next year with the same number of rigs."

Two things he lists as helpful are "more realistic bidding by contractors, and a changed attitude on the part of the operator so that he isn't crowding the contractor to the absolute minimum."

LeRoy Menzing
EDITOR

"...pacing the pipeline construction industry
for more than a quarter century"

price tower — PIPELINE H·C·PRICE·CO CONSTRUCTORS — bartlesville, oklahoma

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
December 12, 1958

AT-A-GLANCE PETROLEUM WEEK

Oil companies are telling Congress that more—not less—government incentive is needed for overseas investment. Major-company witnesses have recommended to a House subcommittee that tax laws be liberalized, and that protectionist action be taken only when national security is endangered. The testimony was a broad but clear appeal to maintain the current tax depletion for foreign petroleum activities and to slow import controls.

The oil company spokesmen—from The Texas Co., Standard Oil Co. of California, and Standard Oil Co. (N.J.)—backed proposals by the State and Commerce Depts. that the U.S. give tax credit to companies that receive tax concessions abroad.

The hearings, before a House Ways & Means subcommittee headed by Rep. Hale Boggs (D., La.), will be used in Congress' determination of tax policy next year.

•

The Justice Dept. is dusting off old industry investigations. Witness last week's suit against Jersey Standard and Kentucky Standard (page 8). The subject is eight years old, but Justice has only now haled them into court. Another dated investigation that may also get a new look is the ownership of Atlas Supply Corp. by five major oil companies.

•

A group of oil jobbers is seeking a congressional investigation of sales to commercial accounts by major companies. The National Oil Marketers Assn., rebuffed by the Federal Trade Commission, has asked four congressional units to look into its claims of below-cost selling.

•

Oil-state congressmen say they will move quickly against oil imports if the voluntary program fails. House and Senate members from the producing states say that, unless the new program shows signs of solid success early next year, they will renew demands for mandatory controls in imports. These members of Congress feel that if the White House does not act in such a situation, Congress would.

•

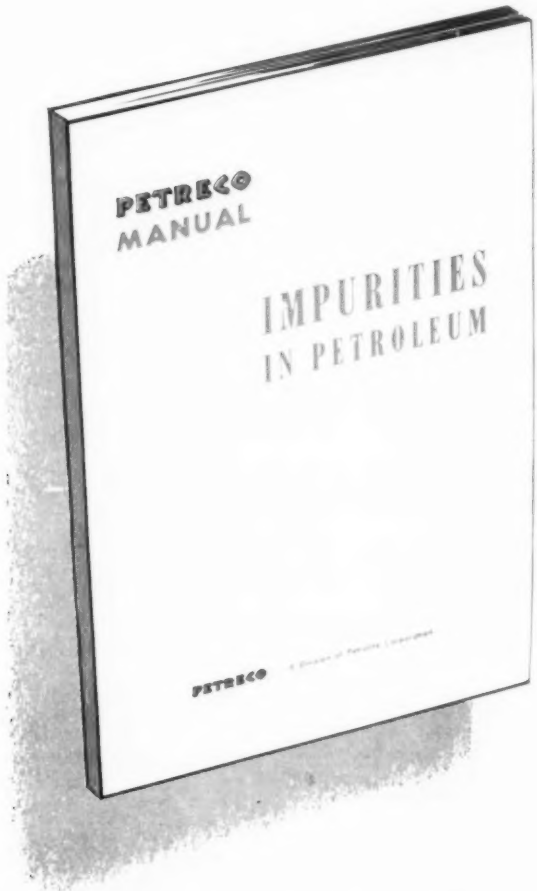
The Administration is considering the addition of a small business representative to the Cabinet Committee on imports. Sen. John Sparkman (D., Ala.), chairman of the Senate Small Business Committee, has written President Eisenhower and Commerce Secretary Lewis Strauss asking that Wendell Barnes, head of the Small Business Administration, be added. Sparkman's request is given a good chance.

•

A 1,000-kiloton A-bomb could free up to 600-million bbl. of oil for possible recovery from the Athabasca tar sands. That's the word from experts of the Atomic Energy Commission. They say the explosion would vaporize nearby hydrocarbons, and the resulting gases would help diffuse enough heat to raise the temperature over a wide area by 100 degrees Centigrade or more—thus inducing oil flow. The same technique can be used with oil shale, except at higher temperatures. Costs should be surprisingly low, say the experts.

valuable information
for ***REFINERY EXECUTIVES,***
PROCESS and RESEARCH ENGINEERS,
LABORATORY SUPERVISORS
and others interested
in the problems growing out of

"IMPURITIES IN PETROLEUM"



THIS TECHNICAL MANUAL is an up-to-date summary of impurities commonly found in petroleum and its products, especially as related to their significance in refinery operations. It contains the results of Petreco's extensive research on the subject, as well as the latest contributions from others in the industry. Part I describes how these impurities are affecting refinery operations where new processes, especially of the catalytic variety, have in recent times tended to disproportionately increase their harmful effects. The growing demands to produce maximum yields and premium products make this topic an increasingly important one. Part II presents a series of selected and tested analytical methods applicable to the evaluation of processes designed for the removal of these impurities.

Here are just some of the topics discussed in this informative new edition:

PARTIAL TABLE OF CONTENTS

THE NATURE OF PETROLEUM IMPURITIES • *Oleophobic impurities* • *Oleophilic impurities* • *Impurity residues from chemical treatments.*

SELECTED ANALYTICAL METHODS • *Sampling* • *Water Contents of Oils* • *Carry-over from Chemical Treatments* • *Salts in Crude Oils* • *Direct Determination of Chlorides* • *Phenols, Thiophenols, Mercaptans, Sodium and Free Sulfur in Distillates* • *Fouling Test for Settled Alkylates* • *Water Reaction Test for Aviation Fuels, etc., etc.*

THIS INFORMATIVE MANUAL IS YOURS ON REQUEST—For your personal copy of the newly-revised "Impurities in Petroleum", address your request to Petreco on your company letterhead, including your name and title.

PETRECO

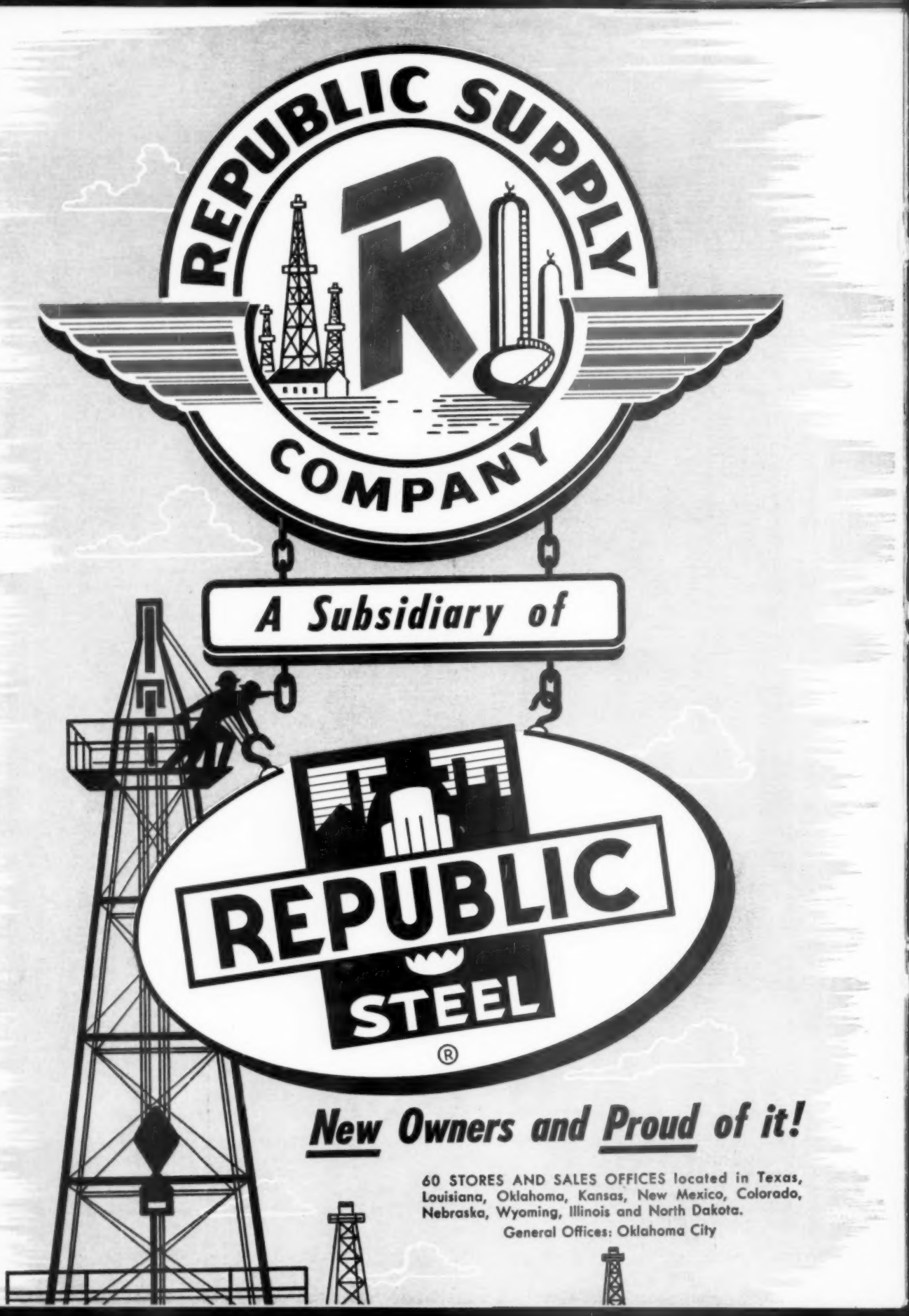
A DIVISION OF PETROLITE CORPORATION

3202 South Wayside Drive, Box 2546, Houston 1, Texas 1390 East Burnett Street, Box 7216, Long Beach 7, California

Specialized Petroleum Treating Processes and Equipment

DESALTING • DEHYDRATING • DISTILLATE TREATING • SWEETENING • LUBE OIL TREATING • SEDIMENT REMOVAL

PM-58-1

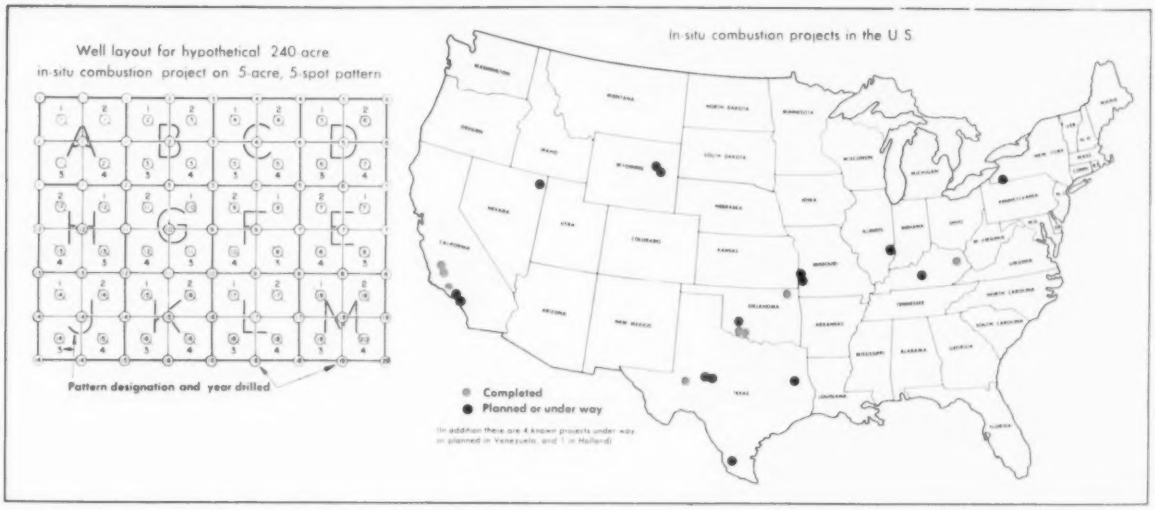


New Owners and Proud of it!

60 STORES AND SALES OFFICES located in Texas, Louisiana, Oklahoma, Kansas, New Mexico, Colorado, Nebraska, Wyoming, Illinois and North Dakota.

General Offices: Oklahoma City

In-Situ Combustion Can Be Profitable


Well layout for hypothetical 240-acre in-situ combustion project on 5-acre, 5-spot pattern
Pattern designation and year drilled
In-situ combustion projects in the U.S.
Completed
Planned or under way

HYPOTHETICAL THERMAL RECOVERY PROJECT (left), based on data gleaned from past projects (right), proves that . . .

In-situ combustion can be a "reasonably attractive" financial venture for oil companies, according to T. W. Nelson, of Socony Mobil Oil Co., and J. S. McNiel, Jr., of Magnolia Petroleum Co.

Nelson and McNiel, speaking at the annual meeting of the Interstate Oil Compact Commission last week in Kansas City, Mo., added that thermal recovery can be profitable even though "very conservative" cost estimates are used.

And, as development of the relatively new process continues, they said, "it seems reasonable to expect that ways will be found to lower operating costs—which will, of course, improve these economics."

In addition, Nelson and McNiel continued, there already are indications from field tests that oil recoveries higher than 50% are possible—a factor that makes the economic outlook even more favorable.

There are six primary factors to consider with respect to the economics of a thermal-recovery project, Nelson and McNiel said.

These factors are: (1) original oil content of the reservoir; (2) percentage of oil recovery; (3) crude price; (4) air compression costs; (5) well drilling and maintenance costs; and (6) lease operating costs.

Laboratory and field development work to date has provided data on these factors which can be used as a guide in estimating costs in a commercial in-situ combustion operation.

Up to now, actual costs experienced in field pilot tests of the method have been quite high, the experts added, because of the experimental nature of such projects.

There have been nine such projects completed, and another twenty are under way or planned, including four in Venezuela and one in Holland (map).

"In a full-scale commercial operation, where equipment installation and operating procedures have been optimized on a regular production basis, it is reasonable to expect that these costs might be appreciably lower," Nelson and McNiel said. They considered this possibility only to a limited extent, however, in the economic assessment that they reported to IOCC.

Taking a hypothetical 240-acre lease, Nelson and McNiel gave a detailed cost analysis of a thermal-recovery operation.

These are the basic field conditions assumed in the analysis:

Areal extent of reservoir, 240 acres; depth of reservoir, 1,000 ft.; thickness of saturated oil sand, 30 ft.; and original oil in place: 1,500 bbl. per acre-ft.

The unit operating pattern was assumed to be a 5-acre, 5-spot, with the injection well in the center.

The operation was scheduled so that four of these 5-acre patterns would always be operating simultaneously, but separated in their burning cycle by 150 days. Each would have a total burning time of 600 days.

The operation would commence with ignition of pattern No. 1A, followed at 150-day intervals with ignition and burning of patterns 2A, 3A, 4A, 1B, 2B, and so on, until the entire 240 acres had been burned (diagram).

The compressor plant and tank battery would be located near the center of the 240-acre property. Air injection piping and oil collection lines would be shifted from time to time across the property as the operation progressed.

Wells would be drilled only as needed during the life of the project. (The numbers alongside the wells shown in the diagram indicate the year of the project that this drilling should be done.) The total life of the hypothetical project is 21 years. It was assumed that the working life of the compressor equipment could be matched to this.

Over-all compression costs, including ignition equipment and air-delivery piping, was calculated to be $720,000.

Air requirements would be figured on a design basis of 12.4-million cu. ft. per acre-ft. of total sand in the pattern.

Air injection pressure was assumed to be 300 psig. Compressor horsepower requirements were calculated at 3,000 bhp. Using a unit cost of $225 per bhp., the cost of the compressor installation was calculated to be $675,000.

Operating costs for the compressor

plant, including labor, fuel, lubrication, maintenance, and all fixed charges, exclusive of amortization, were estimated at about $180,000 per year, equivalent to about 4¢ per 1,000 cu. ft. of air.

Costs for drilling and casing 1,000-ft. wells were set at $10 per ft.

As an added safety factor, it was assumed by Nelson and McNiel that 50% of the producing wells would be drilled twice, because of well failures that have been experienced in some of the field tests conducted to date.

"It seems quite likely that such a provision would not be necessary for very long in the future," the speakers said, "since liner and corrosion problems experienced in some operations appear to be susceptible to solution with no more ingenuity than the oil industry has shown in connection with many producing problems in the past."

To be conservative in the economic projections, however, the two decided to follow the basis outlined. This gives a total well-drilling cost for the hypothetical field of $1,425,000.

Lease operating expense was calculated on the basis of $400 per well per month.

This figure takes into account the possibility of unusually high well-maintenance costs. It results in annual costs ranging from $45,000 to $50,000 for operation and maintenance of about ten wells.

It would seem that normal development of the in-situ process would result in substantially lower maintenance costs, the two said. But, again in order to be conservative, they used the value given.

Pumping units were assumed to cost $3,000 each, with the number of such units being determined by the pattern burning schedule.

It was assumed that some of these units could be used several times with proper maintenance. So funds were included for workover and reinstallation expenses where needed.

Average daily production from the property, assuming recovery of 50% of the oil in place, would be about 750 b/d. The price of the crude was assumed to be $2.50 per bbl.

A central tank battery to handle this production was assumed to cost $32,000. This includes heavy-duty heater-treater equipment, but no provisions for recovering light ends from the produced gas.

Nelson and McNiel concluded that this hypothetical field operation would net a profit of 61¢ per bbl. over the project's estimated 21-year life.

They considered the operating costs and revenues for the operation year by year, in a conventional profit-and-loss type analysis.

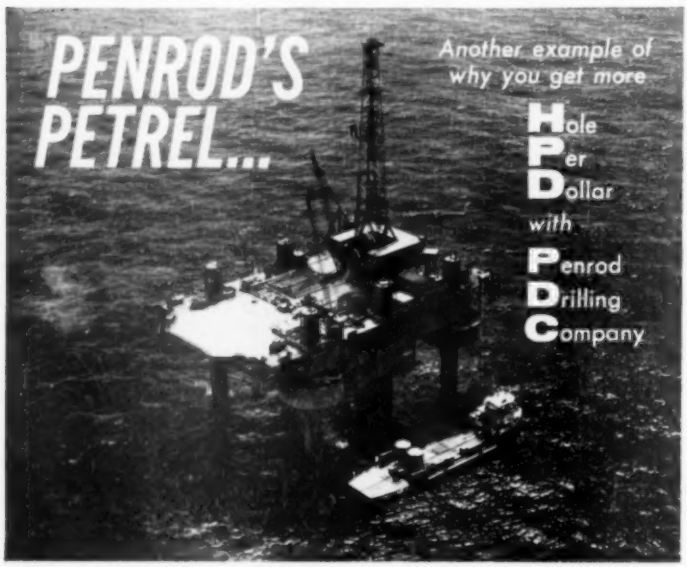
The effect of taxes, royalties, and other business expense was brought into the analysis in a regular manner, and the over-all economics for the project were then calculated.

The two estimated the payout time at 5.8 years, and the rate of return at 21%.

They pointed out that the field conditions assumed in the example, while not optimum, are generally favorable for application of the in-situ process, as now known.

Deeper reservoirs with lower oil content will not be as attractive economically as the example given, they added. But even so, it appears possible to go as low as 1,000 bbl. per acre-ft. in oil content, and to several thousand feet in depth, before the economics of the process become marginal.

The hypothetical example was but a part of a comprehensive review by Nelson and McNiel on the present status and future prospects in oil recovery by various thermal methods.



YOUR DRILLING PROGRAM will end up costing less when you use Penrod's premium equipment and improved methods. That's why Penrod has invested heavily in new mobile platforms like the Petrel, in new drilling barges, and improved land rigs. They are loaded with power, have high pressure pumps, can handle maximum drill collar weight, are equipped with 2-way radio . . . and the men who run them have been on Penrod rigs a long, long time.

You are sure of more **HPD** *with* **PDC.**

One of Penrod's three mobile platforms, the Petrel operates in 100-foot water . . . is powered for deepest drilling programs

Call, wire or write:

PENROD DRILLING COMPANY

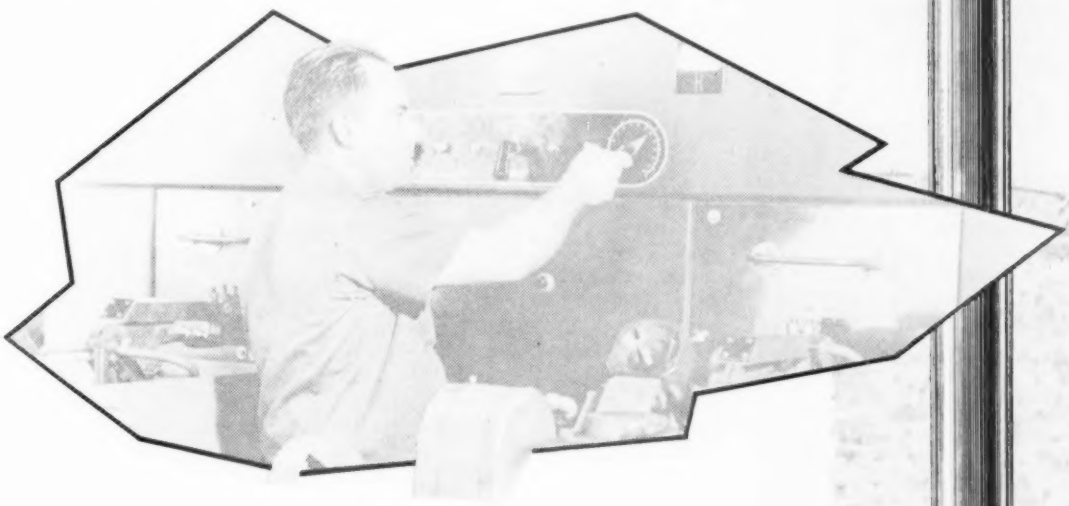
J. P. (Jack) Johnson, Drilling Superintendent

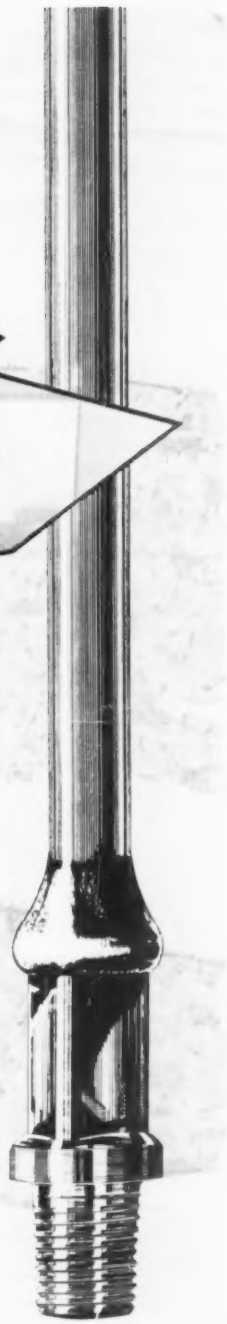
MAIN OFFICE:
1320 MERCANTILE SECURITIES BLDG.
DALLAS, TEXAS
TELEPHONE: Riverside 7-1507

DIVISION OFFICE:
POST OFFICE BOX 508
HOUMA, LOUISIANA
TELEPHONE: UPtown 9-1521

PENROD LAND AND SEA DRILLING COMPANY

From LIBERTY TECHNOLOGY
an excellent NEW product created
to reduce the cost of pumping oil





The LIBERTY
½-Inch Sucker Rod

PUMPING installations for most oil wells should use the time-tested, conventional methods. But for low fluid-volume wells to 5,000 feet in depth, you can save from 10% to 33⅓% with slim hole drilling and completion with the LIBERTY ½-Inch Sucker Rod and LIBERTY Pumping Units.

YOUR NEAREST LIBERTY Field Representative is ready to give technical help in designing installations that can bring YOU these savings. Give him a call, or write LIBERTY. He'll be there when and where you need him.

The LIBERTY ½-Inch Sucker Rod and all LIBERTY products are sold only in Supply Stores, through the LIBERTY SERVICE NETWORK.

LIBERTY
MANUFACTURING COMPANY OF TEXAS
4025 HEMPHILL STREET · FORT WORTH, TEXAS

LM-4

Lab Unit Aids Bottomhole Research

Simulated bottomhole conditions are helping Hughes Tool Co. engineers determine what happens at the point where the bit contacts the formation.

The Hughes researchers, using high-pressure testing facilities, have formed conclusions as to how bottomhole conditions affect Berea sandstone formations.

Now they plan to use the same testing procedures on cores from other formations—possibly a hard shale formation, to start with.

To conduct this research, the Hughes men are using a unique machine, which, in effect, brings the bottom of the hole to the surface.

Two engineers, R. A. Cunningham and John G. Eenink, explain that microbits, about 1¼ in. in diameter, are used to drill into formation cores that are placed in a laboratory drilling unit, in which pressures can be varied between zero and 15,000 psi.

The latter figure is approximately the mud-column pressure of 9.5-lb. mud in a 30,000-ft. hole.

The laboratory drilling unit can simulate bottomhole formation pressures, overburden pressures (total weight of all formations to the bottom of the hole), and mud-column pressures (pressure of mud or drilling fluid at the bottom of the hole).

Briefly, here's how the unit works:

First a core is placed in a pressure chamber, in which there are several openings. Overburden pressure is forced against the core through one opening, and simulated formation pressure through another opening.

This pressure chamber is lowered into a larger pressure chamber. Drilling fluid is introduced through one side of this outer chamber, flowing through the drillstem, down around the microbit, and out the other side of the chamber. The bit is rotated at speeds from zero through 1,200 rpm. by a beveled gear arrangement. Thrust on the bit can be increased to over 7,000 lb.

The engineers explain that the core is lowered onto the rotating bit, instead of the bit onto the core. Also, drilling is done upside down. This, they say, is done for convenience.

Rotary power is supplied by a large electric motor outside the pressure chamber. The jet velocity capacity of the rig is approximately 400 ft. per second.

So far, tests indicate that overburden pressure has little effect on drilling rates in permeable standstones, Cunningham and Eenink say.

For years, overburden pressure has been cited as one of the chief reasons deeper formations are harder to drill. The Hughes tests seem to disprove this, at least for sandstone.

There is no reason to believe overburden pressure will affect the drilling rates in other formations types, either, says Cunningham, but further tests will be made to make sure.

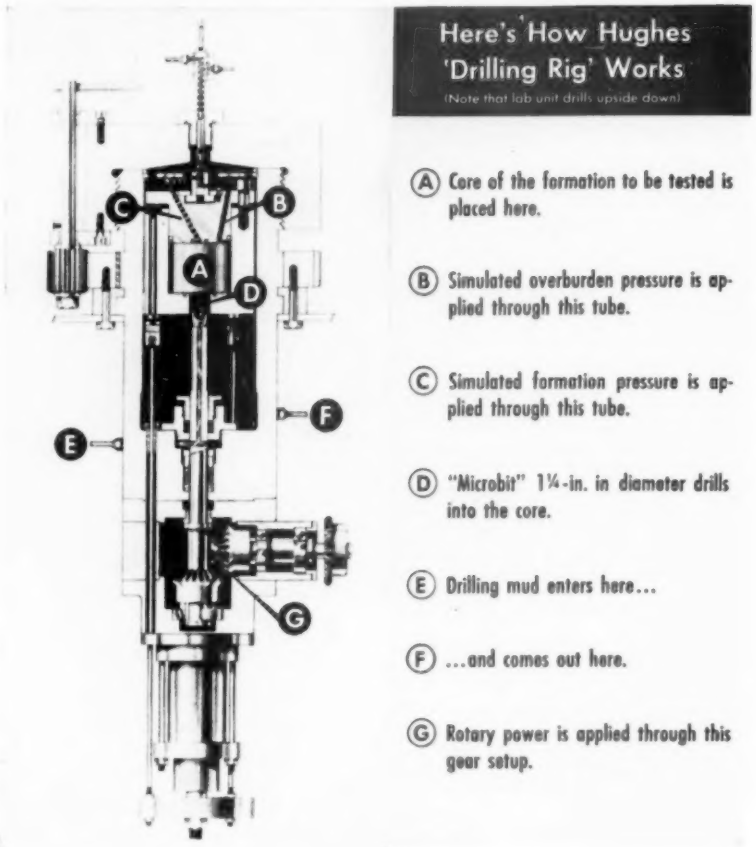
"We have to run the same tests on various types of formations," says the engineer. "Just because one formation acts one way does not mean all formations will react the same way when subjected to the various pressures exerted by our equipment."

In an earlier report, the two engineers reported that drilling rates are improved when the formation pressure is greater than the mud column pressure (PW—Oct.10'58,p23). This is true, they say, because the pressure difference helps clean the hole, thus allowing the bit to penetrate into the new rock.

The researchers know there is much more information yet to be discovered.

"We are trying to learn what variables exist that affect drilling," they say. "We certainly don't know all of them. Once we establish the variables, we'll try to determine to what extent they affect drilling rates."

Dr. Daniel J. Martin, vice-president in charge of engineering, says Hughes has already charted high-pressure drilling research for the next five years.


Here's How Hughes 'Drilling Rig' Works
(Note that lab unit drills upside down)
A Core of the formation to be tested is placed here.
B Simulated overburden pressure is applied through this tube.
C Simulated formation pressure is applied through this tube.
D "Microbit" 1¼-in. in diameter drills into the core.
E Drilling mud enters here...
F ...and comes out here.
G Rotary power is applied through this gear setup.

SANDSTONE core is checked by R. A. Cunningham. Microbit is in foreground.

STRONGEST in the saddle

The Alten pumping unit's bronze bushed saddle bearing is really three sturdy bearings in one. Since only the bottom of the bearing wears, a 120-degree rotation gives you an entirely new bearing surface. You get 200% longer bearing life. And the bronze bearing withstands shock loads best.

The Alten saddle operates with an absolute minimum of parts. It provides for continuous bearing lubrication. It is "oversize" to stand up under the heaviest use and worst abuse.

The Alten saddle also permits easy adjustment of the walking beam to and from the well for centering the polished rod hanger. And it allows convenient lateral adjustment of the walking beam to compensate for minor errors made at the time of installation.

This is the kind of practical engineering built into every part of every Alten pumping unit. Isn't this the way you want your pumping equipment built? Wouldn't it be a good idea for you to call your Alten dealer?

Have you met the Alten gals?

Make a date right now. Send your name and address to Mitzi, Box 426, Lancaster, Ohio.

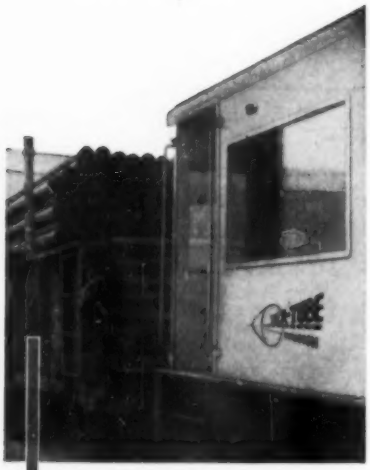
Complete stock at Oklahoma City and Odessa, Texas. Twenty-four-hour service to mid-continent. 48 models and types. Sold through your favorite supply store.

ALTEN FOUNDRY & MACHINE WORKS, INC.

ODESSA, TEXAS • **OKLAHOMA CITY, OKLA.** • LANCASTER, OHIO

Our Customer Saved $2407 per Mile of Pipe on this Trainload of Tex-Tube Lightwall High-Tensile Pipe

You can do the same!



Tex-Tube switching engine shown pulling a trainload of 6⅝" O.D. Lightwall High Tensile Pipe at the Houston Plant.

Sales Offices in Midland, Texas
Tulsa, Oklahoma
Baton Rouge, Louisiana

TEX-TUBE, INC.

1503 NORTH POST OAK ROAD
HOUSTON, TEXAS

LICENSED BY THE AMERICAN PETROLEUM INSTITUTE

New Ways to Handle Brine

Oil companies now consider salt-water disposal a necessary—though costly—part of operations.

More efficient methods for handling salt water produced with oil are in prospect, according to two experts from Atlantic Refining Co.

The experts—Henry Lewelling, senior chemical engineer, and Monte Kaplan, chemical engineer—told a University of Texas seminar last week that the problem of costly salt-water disposal is being attacked on several fronts, with some indications of success.

The two noted that salt-water production is "one of the real headaches in the production of oil" and one which exacts a heavy expenditure from the oil industry.

Chemical treatment is one method of salt-water disposal that is receiving heavy attention, the Atlantic engineers said.

Polyphosphates, for example, have been used "with spotty effectiveness" for years to control scale deposition, Lewelling and Kaplan said. "Now, the chemical manufacturers are attempting to design sequestrants whose physical and chemical properties are better suited to the oil industry's needs. Solubility characteristics and reversion rates are being tailor-made in an effort to make these very complex materials more useful."

New corrosion inhibitors also are being developed, the speakers reported.

But, they added, "we have not yet found the one we want—a cheap one, which will give 100% protection in any fully-aerated heavy brine at 5 ppm. or less." They noted, however, that manufacturers are making "continuous improvement."

Bacterial control is not being overlooked by researchers, the Atlantic experts continued.

Work is under way, they said, to define the significance of bacteria from the standpoint of the economics of problems they cause or aggravate.

Better and more specific bactericides are being developed, although a low-cost, universally applicable one is not yet available, they reported.

Research on de-ionization of salt water by various means may provide a usable water from a waste material, said Lewelling and Kaplan.

At present, however, "the processes all look uneconomical," they said, "but work is continuing."

Traces of many valuable minerals are found in some brines, the Atlantic engineers noted, adding, "It is possible that as time goes on these may be exploited."

"Automation is beginning to show up in salt-water treating plants," according to Lewelling and Kaplan.

"While it costs more to install a fully automatic plant than one operated manually," the speakers said, "the difference is reasonable."

At the same time, savings can be made in operating costs, because less manpower is required, they noted. Also, the automatic plant will probably supply high-quality injection water more consistently.

Another important development has appeared recently, the speakers reported. This is the changed attitude of the oil industry toward salt-water disposal.

Operators today often prepare for the disposal of salt water as part of the development of a property, they said. "This may or may not be economically attractive in present-worth money, but it certainly simplifies the problem of handling the salt water when it does become necessary."

In former days, salt water was simply separated from the oil and allowed to flow by natural drainage into streams, resulting in pollution.

Now, most of it is either piped into salt water bodies such as the Gulf of Mexico, pumped back into the reservoir, or run into evaporation pits, the experts said.

The Atlantic speakers said there are at least two major reasons—besides cost—for the oil industry's concern with disposal of salt water; (1) good citizenship, and (2) legislation.

Lewelling and Kaplan said a "strong trend toward good citizenship" has been developing in industry for some years.

"There was a time," they said, "when the only concern in most industries was for profit."

Now, however, industrial companies are more conscious of their social and community obligations.

On the legal side, the speakers noted that in recent years Mississippi, Arkansas, Oklahoma, Kansas, and New

sulfuric acid services available from Olin Mathieson*

* **ECONOMIC ANALYSIS.** To get dependable cost figures, you need a working estimate which relates all pertinent factors to your location and requirements. We will be glad to develop figures which will be realistic and dependable.

* **ACID RECOVERY.** Disposition of spent acid can be a considerable cost factor. We will work out recommendations for handling spent acid to your best advantage.

* **EFFICIENT HANDLING.** For suggestions on good operating procedures, best piping and container materials and other details of handling sulfuric acid, you can call on our Technical Service.

* **SAFETY.** It is most important that new operations or new employees have complete safety and handling instructions. We can furnish these as printed literature or in wall chart form.

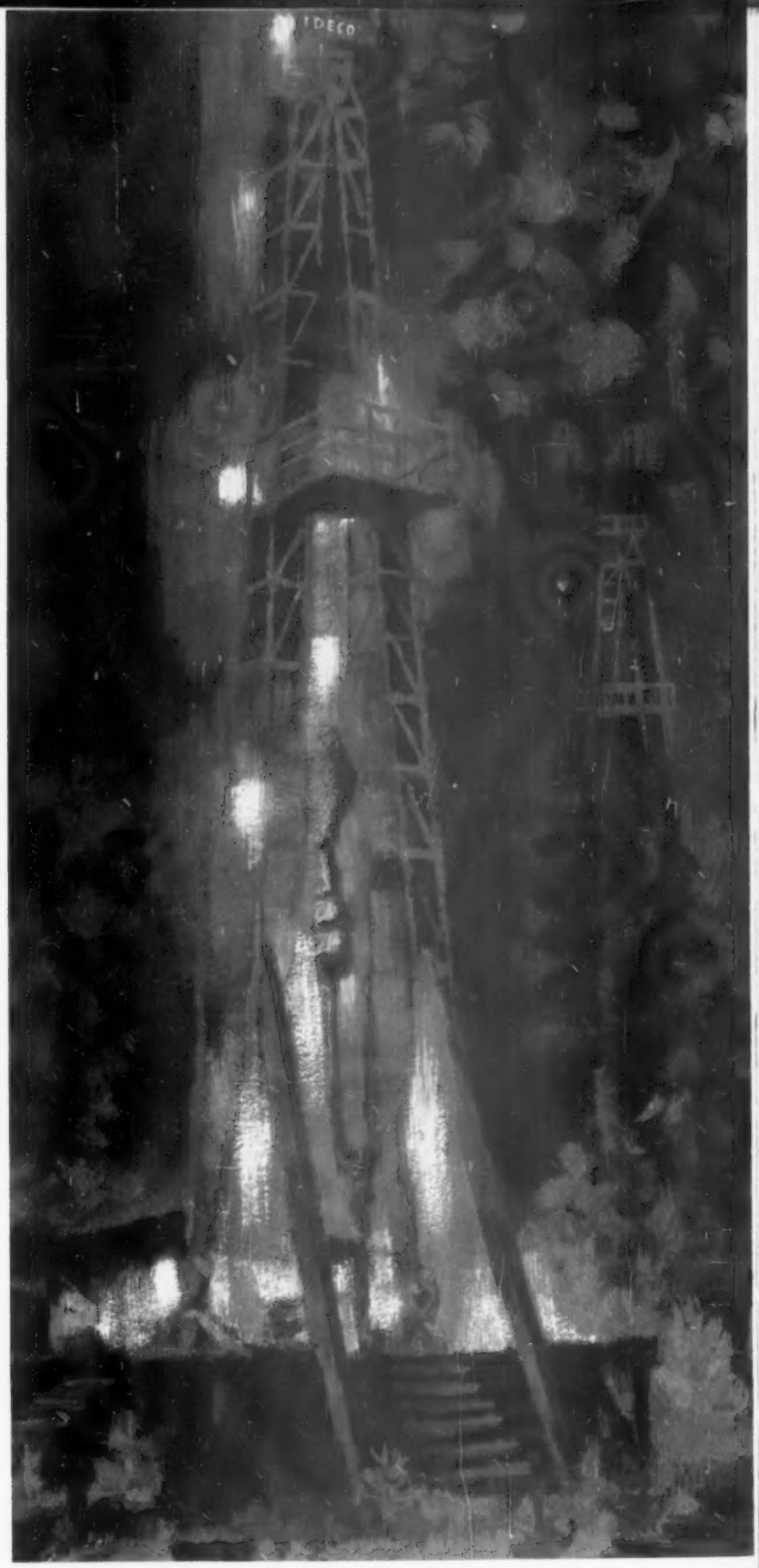
For detailed information on any of the above subjects, call our nearest office or write Olin Mathieson Chemical Corporation, Chemicals Division, Baltimore 3, Maryland.

OLIN MATHIESON CHEMICAL CORPORATION

MATHIESON CHEMICALS

DISTRICT SALES OFFICES: Atlanta • Buffalo • Charlotte • Chicago • Cincinnati Houston • New Orleans • New York • Pasadena • Philadelphia • Providence • St. Louis Montreal, Quebec

6396



CLARK

CLARK BROS. CO.
compressors and gas turbines

DRESSER DYNAMICS

DRESSER DYNAMICS, INC.
advanced scientific research

DRESSER IDECO

DRESSER IDECO COMPANY
steel structures

DRESSER
MANUFACTURING DIVISION

DRESSER MANUFACTURING DIVISION—couplings

Guiberson

THE GUIBERSON CORPORATION
oil tools

Hermetic Seal transformer co.

HERMETIC SEAL TRANSFORMER CO.
electronic transformer development

IDECO Inc.

IDECO, INC.
drilling rigs

GREETINGS . . .

Peace on Earth to Oilmen Everywhere in an industry that is just completing its first century of service to mankind in making the world a better place to live, love and work.

MERRY CHRISTMAS

LANE-WELLS COMPANY
technical oilfield services

Magcobar.
MAGNET COVE BARIUM CORP
drilling mud

PACIFIC
PACIFIC PUMPS, INC
pumps

ROOTS-CONNERSVILLE
BLOWER DIVISION
blowers and meters

Security
SECURITY ENGINEERING
DIVISION—drilling bits

SIE.
SOUTHWESTERN INDUSTRIAL
ELECTRONICS
electronic instrumentation

WELL SURVEYS
WELL SURVEYS, INC
nuclear and electronic research

Mexico have enacted legislation intended to prevent damage by waste material from the production of oil. The federal government also has enacted similar legislation affecting waste waters flowing across state lines.

Atlantic's costs for brine-disposal run about ½¢ per bbl., the engineers said. This figure, if projected on a national scale, means the oil industry is spending about $30-million annually for such disposal.

Lewelling and Kaplan estimate that at least 2 bbl. of salt water were produced with each bbl. of oil in 1956, when about 3-billion bbl. of oil was produced.

The 6-billion bbl. of salt water produced would fill a rectangular tank 100 ft. deep, 1,000 ft. wide, and 16 mi. long. If this salt water were evaporated, the remaining salts would weigh about 125-million tons.

The talk by Lewelling and Kaplan was one of a series presented by Atlantic experts to petroleum engineering students at the university (PW—Dec.5'58,p32).

Pembina Gets New ACT System

A custom-made automatic custody transfer system, said to be the first of its type in Alberta, is in operation in Pembina field.

The system, a positive displacement type involving two tank batteries handling 20 wells each, was built "from the ground up" by Plymouth Oil Co. It was begun last August and completed in October.

Although automatic tank batteries are in operation in a few Canadian fields, it is believed that these—with one exception—were developed through conversion of conventional facilities.

The exception is the Mobil Oil of Canada, Ltd., Weyburn field project, in Saskatchewan, where the company built two central and four satellite batteries without resorting to conversion.

The Plymouth units are designed to have automatic custody transfer of oil, and automatic electric time clock arrangements for the testing of each well.

All of the manifold valves are operated by electric motors, with electric integrators and meters being used for measurement of natural gas and oil.

The Plymouth Oil Co. development has created considerable interest among other oil companies—primarily because of the savings realized in custom-building the system rather than converting standard equipment.

John R. McKay, Plymouth's regional supervisor in Canada, says conversion of a conventional tank battery would have meant excess equipment after conversion—such as tanks, separators, and meters.

In addition, says McKay, Plymouth saved the installation of one 12-well conventional tank battery, since it would have taken three such batteries to handle 36 wells, while Plymouth's two units together handle 40 wells.

C. L. Franke, Plymouth's regional production superintendent, says that, "over the life of the field, the project will result in savings amounting to perhaps thousands of dollars."

The possibilities of future pressure maintenance in the field further enhance the value of building from the ground up.

"Should the area go to pressure maintenance—and there is that possibility—the system has an added advantage in that the equipment is constructed so that half of it can be removed and used at another battery site without any real loss of tankage and equipment," Franke says.

Plymouth management planned this flexibility as a matter of readiness for possible change-over of half of the wells from production to injection under a system of pressure maintenance.

Franke says that, in the event of a waterflood project, additional automatic equipment, designed to furnish marketable oil, could be readily installed for facilitating removal of any water that might be produced with the oil.

Pembina's Cardium Sand reservoir is regarded as a prime prospect for pressure regulation programs.

The installation follows a highly successful drilling program initiated three years ago when Plymouth entered the Pembina play.

In this period, Plymouth has completed 92 wells in Pembina.

The company now holds approximately 7,368 acres in the field. This acreage cost Plymouth a total of $3,679,449.

The wells are on 80-acre spacing. In November, individual well production was at the daily allowable of 50 bbl. Bonus allowables for new wells, however, adds to the total production. As a result, Plymouth's two systems, during November, handled 72,000 bbl. of crude. On a daily basis, this amounts to 1,200 bbl. for each system.

New Deep Pay At North Tejon

Outlook for the North Tejon field, in Kern County, Calif., has been enhanced by the completion of a dual producer that has opened a new and deeper pay for the blossoming field.

Richfield Oil Corp. of California No. 63-24 ROC-KCL G, section 24-11n-20w, is producing from the Vedder sand, the field's previously proved pay, at 8,620-970 ft., and from the Eocene sand at 10,914-11,331 ft.

Initial production from the Eocene was at the rate of 710 b/d of oil based on 4-hour gauge through 32/64-in. choke, and 7.5 million cf/d of gas.

Present Eocene production in the dual producer is 236 b/d of 52.5-gravity oil through 12/64-in. choke, and 2,240,000 cf/d of gas.

Initial production from the Vedder sand was 1,168 b/d of 40.8-gravity oil through 27/64-in. choke, and 6,250,000 cf/d of gas.

Present Vedder production is 305 b/d of 43.5-gravity oil through 12/64-in. choke, and 1,440,000 cf/d of gas.

The new well brings to 14 the number of completions in the 20-month-old field, said to be one of the most significant discoveries in California's San Joaquin Valley in recent years.

Present production from the field is approximately 5,000 b/d of 32- to 35-gravity oil.

Thirteen of the producing wells produce from the Vedder, including the dual completion, while one produces from the shallower Olcese sand.

Reserve Oil & Gas Co. owns the discovery well; Reserve and Standard Oil Co. of California share interest in eight wells; Reserve, Sunray Mid-Continent Oil Co., and Tejon Ranch Co. own the Olcese well; and Richfield has the remaining four wells.

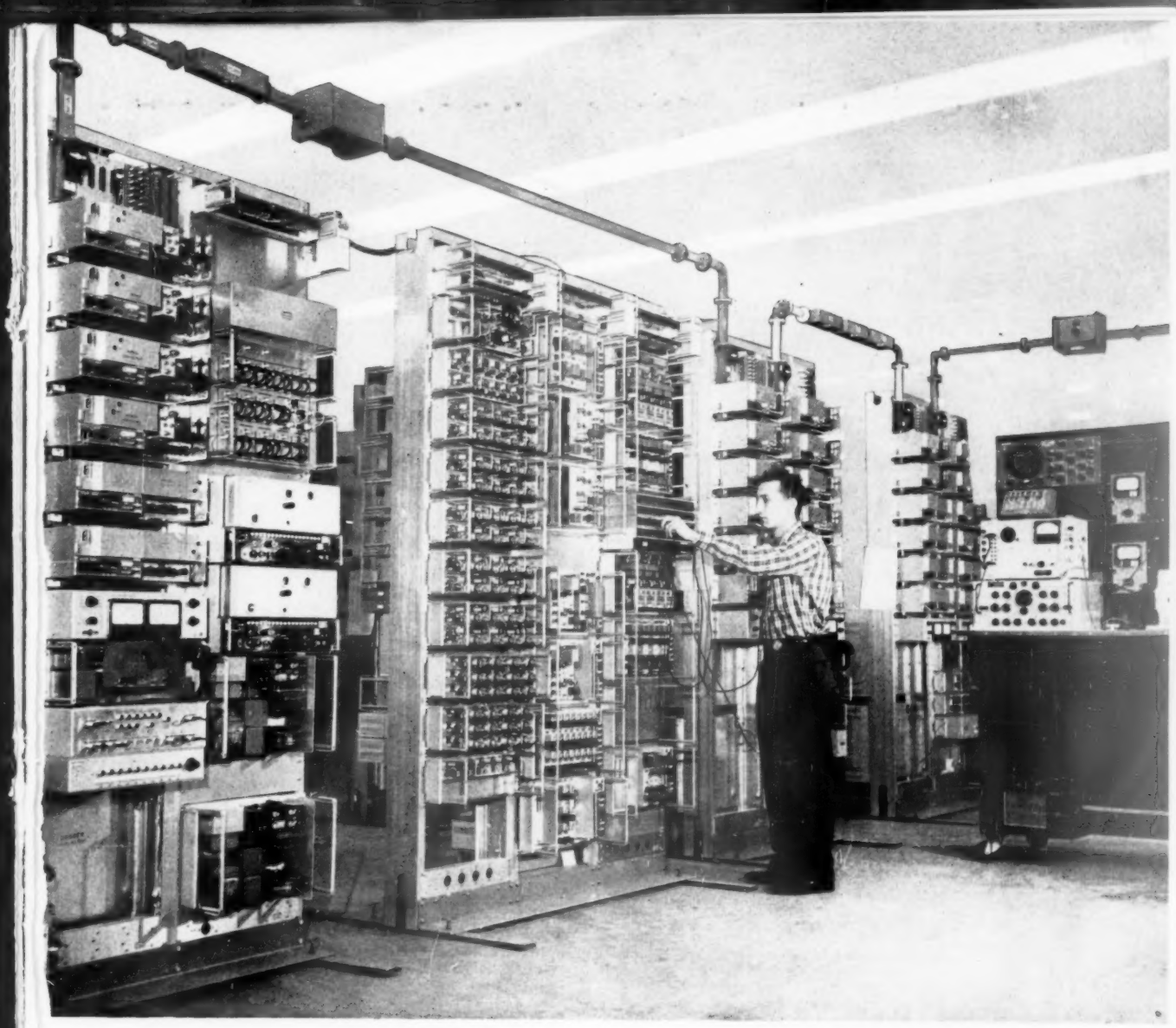
Seven rigs are currently working in the field, making it a hot spot by California's depressed standards.

Three are working for Richfield, three for Reserve, and one for Standard Oil Co. of California.

Richfield's active projects are No. 78-13 KCL I, drilling below 7,556 ft.; No. 74-24 ROC-KCL G, drilling below 6,977 ft.; and No. 72-24 KCL I, spudding in.

Reserve's active projects are No. 312-20 BW-T, drilling below 10,100 ft.; No. 115-20 Reserve-Dunlavy, testing good show in Olcese sand at 7,469 ft.; and No. 311-19 W-T, drilling below 10,418 ft.

Standard Oil Co. of California's No. 338 Universal Consolidated is drilling below 3,840 ft.



THIS MAN IS SAVING YOUR MONEY

One of the exceptional service features which saves time and money for every buyer of a Collins Microwave system is final floor testing. The completed system built by Collins is racked in the testing area. Units of the system which will be many miles apart in the final installation are connected by waveguide containing path-loss-simulators to approximate actual operating conditions. Data compiled during the testing is used by installation technicians, for a tremendous savings of installation hours.

Collins racks are assembled, wired, tested and shipped as a unit to each site ready for setting in place and going to work.

Your microwave dollar buys more service, more reliability, more flexibility and more value when you specify *Collins*. For complete information, write or call Microwave Sales Division, Collins Radio Company, 1930 Hi-Line Drive, Dallas 7, Texas.

COLLINS

COLLINS RADIO COMPANY • DALLAS • CEDAR RAPIDS • BURBANK

What's New / IN PRODUCTION

Texas Lands Bring $3.4-Million in Bonuses

Oil and gas lease rights on 89,262 acres of Texas land have brought bonuses totaling $3,404,069.

Although bids ran somewhat lower than at previous sales, land commissioner Bill Allcorn said last week that the bids were "gratifying in view of cutbacks in oil allowables."

Gulf Oil Co. paid a $57,350 bonus for 40 acres of Pecos River land owned by the school land board. The land is in the active development zone of West Texas, including Pecos, Ward, and Crane Counties.

Humble Oil and Refining Co. paid $788,995 for 9,438 acres in the Sabine Lake area, Jefferson County.

In addition to bonuses, bidders pay $5 per acre rental ($3 west of Pecos River), and one-sixth royalty on oil and gas production.

•

The Union Pacific R.R. has asked the Colorado Supreme Court to set aside its ruling that UP does not retain valid mineral rights on land it sold in 1889.

The railroad's petition for a rehearing said the decision as it now stands would "upset the stability on which the commercial development of this state was based."

The court ruled Oct. 27 that settlers who bought government-granted land from the railroad also obtained mineral rights, including oil and gas (PW—Oct.31'58,p6).

•

D-X Sunray Oil Co. is now handling by automatic custody transfer all crude coming into its two big Oklahoma refineries.

The company is receiving 70,000 b/d at West Tulsa from four Mid-Continent Pipe Line Co. lines. The crude is passed through 14 positive-displacement type, temperature-compensated meters.

The company also is receiving 36,000 b/d of crude and 2,000 b/d of natural gasoline at Duncan. This flow is regulated by six p-d meters. Mid-Continent designed and built both metering systems.

Currently, all crude entering the two plants under ACT goes directly to refinery storage. The ACT systems have been so designed, however, that the crude can flow directly to refinery stills as charge stock should D-X Sunray so decide.

•

Work will start in a few weeks on a $1-million seismic study of Cook Inlet, Alaska, adjacent to the Kenai Peninsula lowlands.

Standard Oil Co. of California, operator for a group of companies, will make the survey of the submerged lands. Stancal will use underwater detection devices to enable survey boats to avoid schools of fish. Seven boats will be used.

Other companies in the group are Ohio Oil Co., Pan American Petroleum Corp., Shell Oil Co., D-X Sunray Oil Co., Superior Oil Co., The Texas Co., Union Oil Co. of California, Western Gulf Oil Co., and Richfield Oil Corp. (Los Angeles).

•

Almost half of U.S. domestic crude production last year came from fields found between 1930 and 1949.

A survey conducted by the National Oil Scouts & Landmen's Assn. shows that 23% of last year's production came from fields found prior to 1930, and that 27% was produced from the fields discovered between 1950 and 1957.

In making the survey, the association covered approximately 6,854,000 b/d of the 7,169,000 b/d produced last year. The analysis of the survey was made by the cost-study committee of the Independent Petroleum Assn. of America, and was reported in the Independent Petroleum Monthly.

•

The executive committee of the Rocky Mountain Oil & Gas Association will meet Dec. 16 in Salt Lake City to examine what position it should take on possible ratable-take laws in Utah (PW—Dec.5'58,p20).

The committee also will examine the need for strengthening other correlative rights features of the Utah oil and gas conservation laws, and the possibility of introducing "common purchaser" type laws.

In a previous meeting, before the Aneth field shutdown, the committee tabled action on Utah's conservation

New type
DRILLING PLATFORM
. . . GOES "ON LOCATION" FOR ARAMCO
First Mobile Tender-Assisted Platform Makes Debut in Persian Gulf

The new LeTourneau mobile platform, "Aramco Mobile Drilling Platform No. 1," introduces another money-saving advancement to the offshore drilling industry. This self-elevating platform, used with Aramco's tender "Queen Mary," can be moved quickly from location to location . . . saving the time and cost of building a permanent structure each time.

The Aramco platform was built at our Vicksburg, Mississippi plant and towed to the Persian Gulf. Another LeTourneau tender-assisted platform, built for another company, will soon be operating in the Persian Gulf. While similar in design to the larger self-contained LeTourneau mobile platforms, these tender-assisted units carry a minimum of equipment other than derrick and drawworks. The remainder of the equipment needed for drilling is carried aboard the tender.

In offshore operations around the world, big self-contained and smaller tender-assisted LeTourneau mobile platforms are building a reputation for efficient performance at lower operating costs. Each platform is built to meet specific requirements of the operating company. For detailed information, without obligation, send in the coupon below.

SEND FOR YOUR FREE COPY OF "OCEANS OF EXPERIENCE"
Detailed information on LeTourneau Mobile Platforms

LET
LE TOURNEAU EQUIPMENT

R. G. LETOURNEAU INC

28512 South MacArthur • LONGVIEW, TEXAS

Gentlemen; Please send me my free copy of "Oceans of Experience"

NAME _____ TITLE _____

COMPANY _____ ADDRESS _____

CITY _____ STATE _____

M115

REAMING TOOLS?

GRANT Makes Them All!

Because every drilling well imposes its own set of reaming conditions. Grant makes *three* distinct Reamer types to meet all formation, depth and drilling requirements . . . all preferences.

Moreover, when you add five Grant cutter styles . . . 3, 6 or 9-point Reamer models . . . and a complete range of sizes – you have an *unlimited combination* of Grant Reamers for efficient, economical reaming in any well, anywhere.

There are Grant Reamers for every reaming job simply because, when it comes to Reamers – **only** *Grant makes them all!*

This is just one of the three *families* of Grant Tools made for reaming, hole enlarging and stabilizing. For full information on these, and a wide range of other down-hole and surface tools made by Grant, send for your copy of the complete Grant Catalog *today!*

GRANT OIL TOOL COMPANY

Main Office and Plant:
2042 EAST VERNON AVENUE, LOS ANGELES 58, CALIFORNIA
Cable Address: GRANTOOL

AVENAL, BAKERSFIELD, COMPTON, VENTURA, WILLOWS, CALIFORNIA • LIBERAL, KANSAS • HARVEY, HOUMA, LAFAYETTE, LOUISIANA • LAUREL, MISSISSIPPI • FARMINGTON, HOBBS, NEW MEXICO • NEW YORK, NEW YORK • OKLAHOMA CITY, OKLAHOMA • CORPUS CHRISTI, HOUSTON, ODESSA, TEXAS • CASPER, WYOMING • EDMONTON, CANADA

laws because of differences within the industry on the subject.

•

A sale of oil and gas rights scheduled by the Alberta government for Jan. 15, will involve 399,515 acres in proven and unproven areas.

Parcels of land offered are in the Gilby, Kaybob, Keystone, Pembina, Stettler, and Virginia Hills areas. The total includes Crown Reserve parcels numbered 1569 through 1588, covering 30,875 acres.

•

The Colorado Land Board last week accepted bonus bids totaling $253,800 for oil and gas leases on 176,000 acres of state lands.

The board offered a total of 235,000 acres.

The high bonus bid, $31.27 per acre, was paid on 160 acres in Logan County, in the Denver-Julesburg Basin, by William H. Cozart, Denver operator.

Most of the land leased is in the San Luis Valley, southwestern Colorado, a center of heavy lease play this fall.

•

Various working interests in 17 oil wells in Texas, Mississippi, and Wyoming have been bought by Landa Oil Co., Dallas, from F. M. O'Connor, Houston.

Ten of the wells are in the Texas Gulf area. Consideration was said to be cash, but amount was not disclosed.

•

Bayview Oil Corp. has acquired 15 oil wells in Ed Bishop Field, Young County, North Texas, from S. D. Johnson, Wichita Falls, Tex.

A. Harvey Arant, Bayview president, says the wells are located on about 400 acres. He placed recoverable reserves in excess of 900,000 bbl. He added that the transaction involved cash and retained production payment.

•

Engineering

A drilling rig custom-made for desert operations, with the emphasis on mobility and quick rig-up time, has been built by Ideco, Inc., one of the Dresser Industries.

Called "Desert Star", the rig was designed for Camdrill International's operations in Libya. The unit is completely mounted on five trailers, which have oversize tires for travel over sand. The mud system, except for the tanks, is wheel-mounted.

The unit has a drilling range of 5,000 to 8,500 ft. The 400,000-lb. capacity Lee C. Moore mast is equipped with a horizontally retractable top section, and special rear gin poles. The unit has Cummins diesel engines and Emsco pumps.

•

Drilling Highlights

West Texas—Pan American Petroleum Corp. has triply completed a gas well which gauged a prolific 800-million cf/d of gas from one zone. The well—No. 14-E E. E. Brown, section 5, block B11, psl survey, in Emperor field, Winkler County, flowed the 800-million cf/d from the established Devonian field pay through a perforation series between 8,924-9,114 ft. The well also opened Fusselman production, flowing 25-million cf/d through perforations at 9,318-76 ft., and flowed 18-million cf/d from the Ellenburger in open hole at 11,279-321 ft.

Oklahoma—Sunray Mid-Continent Oil Co. No. 1 Bertha M. Thompson, section 15-25n-5w, Garfield County, flowed 34 bbl. of 41.4-gravity oil per hour on 3-hour test through ½-in. choke and perforations at 6,349-64 ft. in the First Wilcox. The pool opener is 3½ mi. east of Southwest Hunter field.

Alaska—Standard Oil Co. of California No. 3 Swanson River unit, 1½ mi. south of the company's discovery on the Kenai Peninsula, was abandoned at 11,653 ft. with a fish in the hole. Standard is moving in to rework No. 2 Swanson River unit, which went to 12,046 ft. and was suspended last May. The No. 2 is 2 mi. south

Wyoming—True Oil Co. No. 1-TC16 State, section 16-49n-70w, Campbell County wildcat 10 mi. west of Donkey Creek field, recovered 2,752 ft. of oil, 90 ft. of heavily oil-cut water, and 595 ft. of salt water, slightly oil- and gas-cut, on 3-hour test of the Minnelusa at 9,349-400 ft.

Montana—Wendell C. Flynn No. 1 Beagle Land & Livestock, section 17-23n-59e, Richland County, was completed for 75 b/d of oil through perforations at 8,965-9,320 ft. in the Mission Canyon. The well, 6½ mi. southeast of Brorson field, was drilled in 1954 by Sun Oil Co. et al and abandoned at 13,134 ft.

Arkansas—Coulston Drilling Co. No. 1 Cornelius Estate, section 32-16s-23w, Lafayette County, was completed for 43-million cf/d of gas plus 25 bbl. of 65-gravity condensate per million through perforations at 8,103-40 ft. in the Ford zone of the Smackover. The discovery is 3¼ mi. east of Kress City field.

Personnel Boat Is Made of Aluminum

This 52-ft. all-welded aluminum personnel boat, built by Higgins, Inc., New Orleans, can carry 30 passengers at speeds up to 40 mph., in 3½-ft. waves. The vessel has a unique hull form, called "Polyhedral" by the builder. It is driven by two Solar Aircraft Co. 500-hp. gas turbines. The aluminum used—alloy 5456—was supplied by Aluminum Co. of America.

DEPT/Processing & Petrochemicals

Oil Processing Will Help Make Steel

- **The new "H-Iron" process to make steel depends heavily on many techniques developed in oil processing.**
- **In turn, the new steel-making process requires plenty of hydrogen, and it now looks as if oil and natural gas will be called on to provide most of it.**

Oil processing knowhow is mainly responsible for opening a whole new market now unfolding before the petroleum industry—the use of oil and natural gas in making steel.

For over a hundred years, the coke-burning blast furnace, with its large unit capacity and high fuel efficiency, has been unchallengeable as the most efficient means of extracting iron from iron ore.

But last week, the annual meeting of the American Society of Mechanical Engineers heard that this may not be true in the years immediately ahead. A team of researchers from Hydrocarbon Research, Inc., explained it this way:

A new process for making steel, which incorporates petroleum refinery construction practices and petroleum processing economies, now bids fair to become widely accepted in the steel industry. It's called the "H-Iron" process.

Hydrocarbon Research, long active in the design of petroleum processing systems, adapted many petroleum-refining techniques to the problems of making steel in developing the H-Iron process.

The process uses hydrogen as a reducing agent in making iron from iron ore.

Here's how Hydrocarbon Research describes the process:

"Reduction is carried out in several fluidized beds arranged in series to permit countercurrent contacting of iron ore and hydrogen gas. Ore is fed almost continuously to the topmost bed, and the level of this bed rises gradually during the reduction cycle.

"After an interval, reduced iron powder is dumped from the bottom bed to a dump hopper, with practically complete depletion of inventory of the bottom bed. Then contents of the middle bed are dropped into the bottom bed, and a portion of the upper bed content is dropped into the middle bed."

Reduced iron powder removed from the reducer is then sent to an agglomerating mill where H-Iron "piglets"—the currently preferred shape for compacted H-Iron—are made.

Hydrocarbon Research says that "these piglets jackstraw nicely when charged to an electric steelmaking furnace, providing a desirable fraction of voids for transfer of heat throughout the charge during early meltdown."

Stressing the relationship between the H-Iron process and petroleum processing, Hydrocarbon Research contends that "the process conditions of the H-Iron process [are] practically identical to hydrogen-circulating conditions in catalytic reforming of naphtha. By limiting reduction temperature to 900F, it is possible to provide endothermic heat of iron-ore reduction by heating hydrogen to temperatures practicably attainable in standard furnaces of types found in general use throughout the petroleum industry."

Developers of the process believe that oil and natural gas show the most promise as sources of the hydrogen reducing agent.

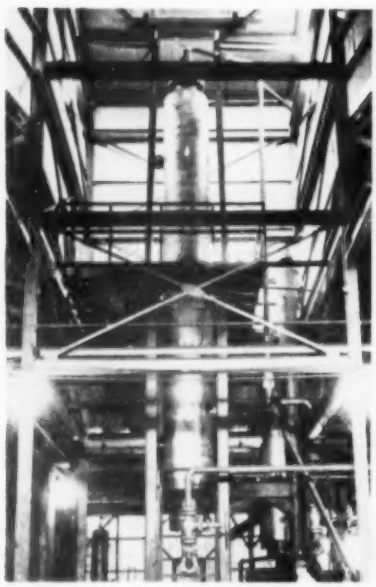
"Refiners should find ample opportunities for their enterprise during these developments," according to HRI. "Refiners may find steel companies receptive to proposals for long-term contracts for delivery of refinery gases or heavy tars not readily salable elsewhere" the company points out. (The steel company would use them as a raw material for the manufacture of hydrogen.)

"Even more interesting for both refiner and steelmaker," the HRI logic continues, "may be deals where the refiner supplies the steelmaker directly with hydrogen across the fence.

"The latter will thereby gain an appreciable reduction in capital cost of his H-Iron installation, while the refiner may either gain an outlet for catalytic-reformer byproduct hydrogen, or gain a sizable increase in hydrogen-manufacturing capacity needed to supply his refinery with hydrogen for hydrotreating off-specification stocks."

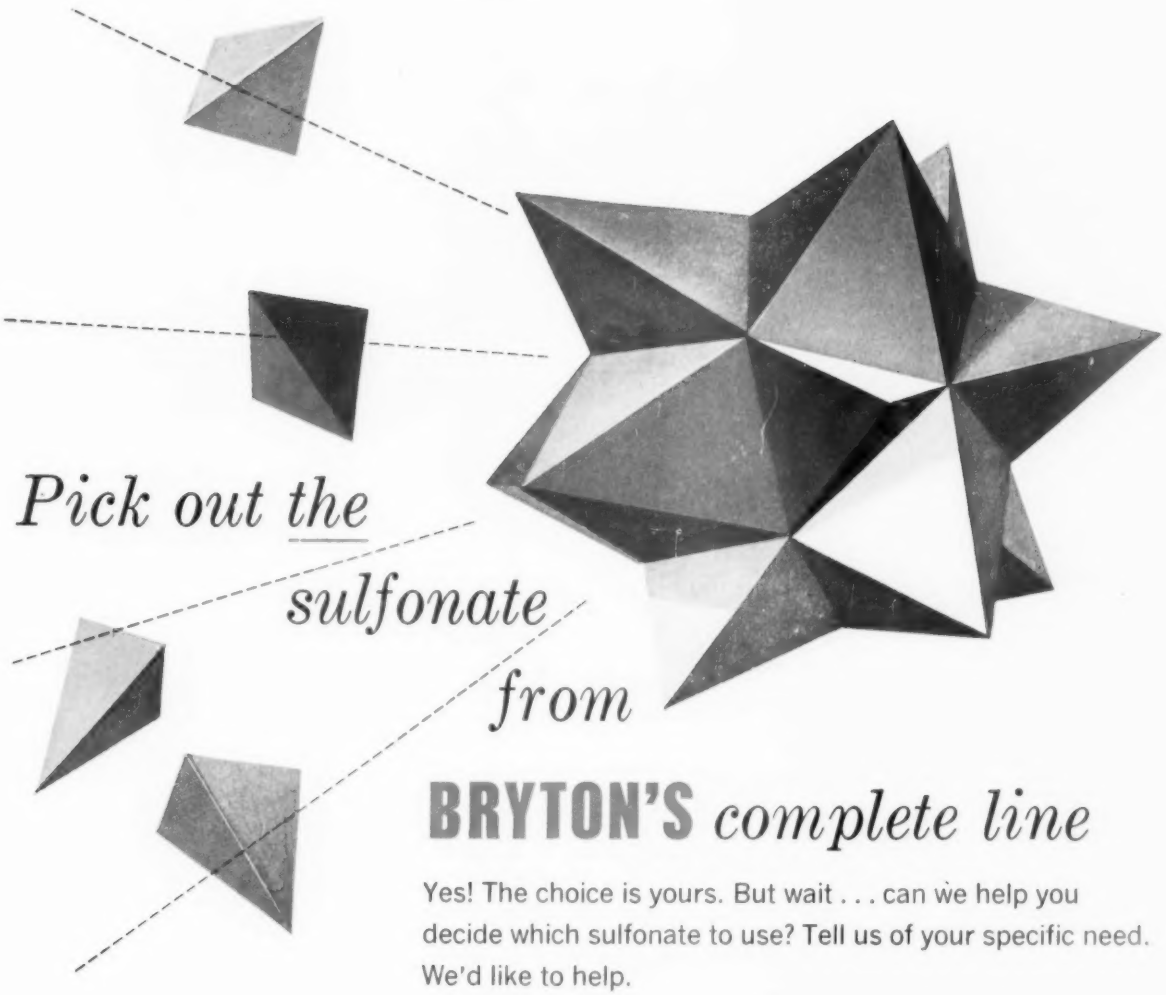
The H-Iron process could also prove an important stimulus to natural gas demand, according to HRI:

"Annual pig iron production has run around 75-million tons," the company points out. Manufacture of 75-million tons of H-Iron would consume more than 1½-trillion cu. ft. of



H-IRON GOT ITS START in this semicommercial reducer, built at Trenton plant of Hydrocarbon Research, Inc.

RESULT: "PIGLETS" of compacted H-Iron, which have been produced by methods similar to those of oil processing.



Pick out the sulfonate from

BRYTON'S *complete line*

Yes! The choice is yours. But wait . . . can we help you decide which sulfonate to use? Tell us of your specific need. We'd like to help.

PRODUCT		MOLECULAR WEIGHT	% SULFONATE
Sodium Sulfonates	Bryton® Sherosope F-430	430	62
	Bryton Sherosope F-445	445	62
	Bryton Sherosope F	465	62
	Bryton Sherosope T	500	62
	Bryton BOSS® 470	460	70
Barium Sulfonates	Bryton Hybase® Barium Sulfonate 65 Base No.	1010	47
	Bryton Barium Sulfonate 30-N 2 Base No.	1010	30
Calcium Sulfonates	Bryton Calcium Sulfonate 30-A	900	30
	Bryton Calcium Sulfonate 45	900	45
Ashless Sulfonates	Ammonium Sulfonate	450	35
	Amine Sulfonates	490 minimum	50

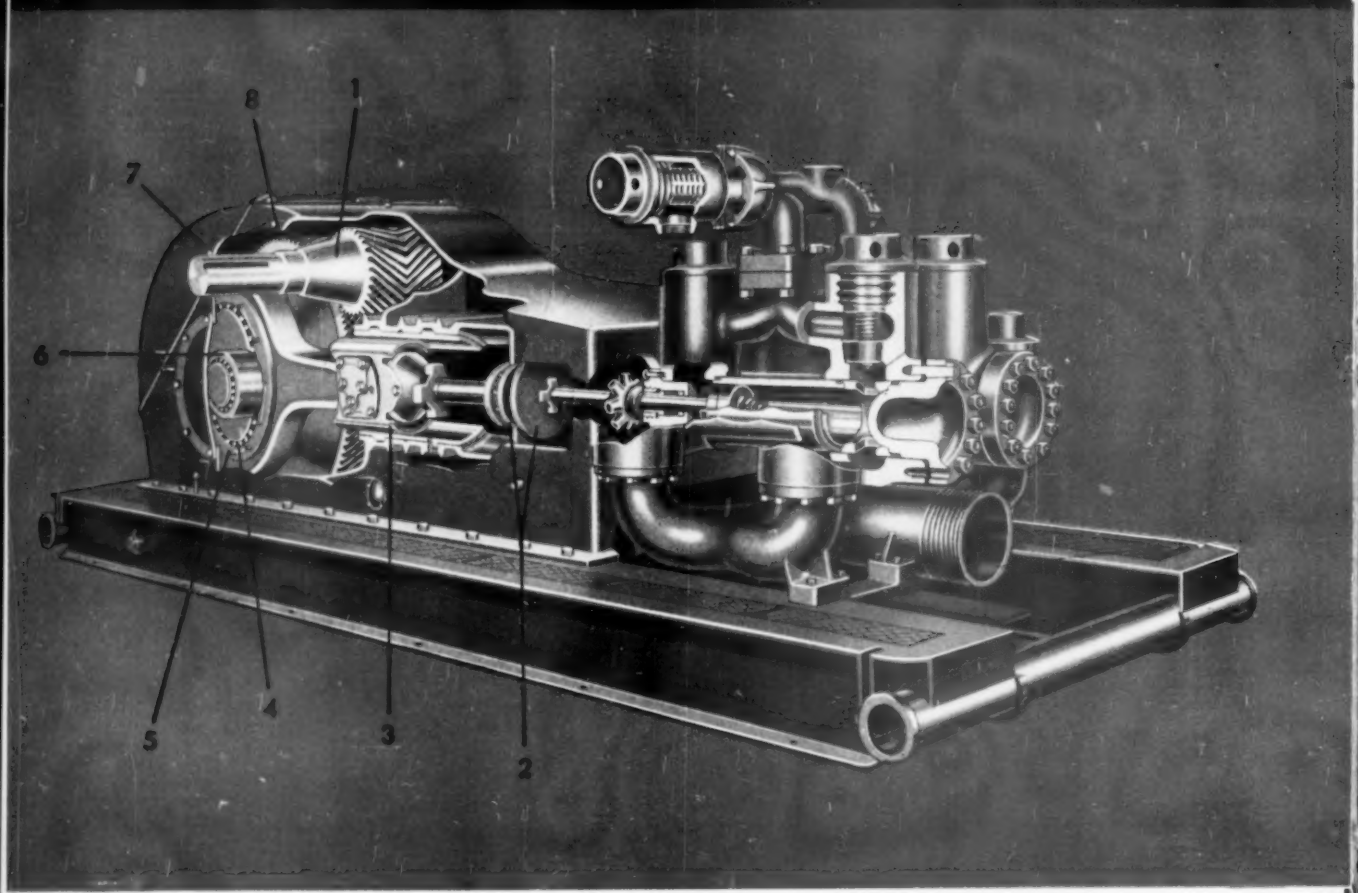
For additional information, write:
Bryton Chemical Company, Dept. R-12
1270 Avenue of the Americas
New York 20, New York
European address: P.O. Box 1207
Rotterdam, The Netherlands

© 1958, Bryton Chemical Company

BRYTON SULFONATES
Specific Sulfonates for Industry

Reliable

Field Performance..



DISTRIBUTED BY

MID-CONTINENT SUPPLY COMPANY

FORT WORTH, TEXAS

Export: Mid-Continent Supply Co., Inc. • 45 Rockefeller Plaza, New York 20, N. Y.

BOVAIRD SUPPLY COMPANY

TULSA, OKLA.

IN CALIFORNIA

CONTINENTAL-EMSCO COMPANY

is insured by

Continental-Emsco Power-End *design*

By the cross sectional drawing, you can see why Tool Pushers and Drillers place so much reliance in the power ends of Continental-Emsco slush pumps. In addition to their rugged construction, these power ends are surprisingly lightweight due to their *Fabriform* construction. In this new concept of pump design, the conventional heavy, bulky casting has been replaced by steel plates, formed and fabricated into a compact, rigid frame. You get *more horsepower per pound* than in any other slush pump.

POWER END FEATURES

1. One-Piece, Forged-Steel Pinion and Shaft
2. Packing Gland and Rubber Baffle Keeps Mud From Power End
3. Replaceable Crosshead Slippers and Frame Guides
4. One-Piece Eccentric Straps, Equipped With Large-Diameter, High Capacity, Retainer-Type Roller Bearings
5. Combination Splash-and-Pressure Lubrication System
6. Roller Bearings Used Throughout
7. All-Steel, Fabriform Constructed Power End
8. Demountable, Forged-Steel Herringbone Gear

Continental-Emsco "D" Series Slush Pumps give you all these wanted, needed fluid end features

- ★ Precharged Pulsation Dampener
- ★ 360° Swiveling Screen, Protects Discharge
- ★ Heavy, Coarse-Pitch Threaded Valve-Pot Covers
- ★ Cylinder Head Lock Liner

Shear Relief Valve

Liners Packed at Both Ends, Exposed to View

Screw-Type Stuffing Boxes

Two-Piece Fluid End on DA-850 and D-1000

Four-Runner Skid, Standard on D-700, DA-850, D-1000

★ All models except D-175 and D-300

MANUFACTURED BY

CONTINENTAL-EMSCO

Serving the Oil and Gas Industries .. Worldwide

SP711

CONTINENTAL EMSCO COMPANY • A Division of The Youngstown Sheet and Tube Company
General Offices DALLAS, TEXAS • Plants HOUSTON • GARLAND • LOS ANGELES

hydrogen, and would require over 1-trillion cu. ft. of natural gas a year (for hydrogen manufacture, furnaces in H-Iron circuit, etc.).

"This is about 10% of the present consumption of natural gas."

Naturally, the H-Iron process combined with electric furnaces won't replace all traditional steel manufacturing facilities immediately. But the process appears to have economic advantages that make a steadily-increasing acceptance of it now seem highly likely.

The Hydrocarbon Research team outlined these advantages this way:

"Capital costs for steelmaking by a combination of the H-Iron process and electric furnaces is about half the capital cost for new blast furnaces, coke ovens, and open hearths.

"Operating costs in the northeastern United States are comparable for both old and new routes to steel (although, of course, return on capital is higher for the new route), but operating costs for steelmaking in Texas or other natural-gas-producing states are appreciably lower for the H-Iron-electric furnace route."

This comparison applies only to manufacture of steel, because the H-Iron process produces a cold melting stock which still contains earthy impurities present in iron ore, while the blast furnace produces hot metal, molten pig iron, from which earthy impurities have largely been removed.

"No one imagines that existing blast furnaces will be abandoned for many years to come," the Hydrocarbon Research representatives told ASME. "But the steel industry must give serious consideration to the combination of the H-Iron process and electric furnaces for future expansion of steelmaking capacity."

The most important advantage of the process may turn out to be the fact that it can multiply the number of locations where steelmaking is economical.

Using traditional manufacturing methods, steelmakers are forced to locate plants where coke is readily available. The H-Iron process, which uses hydrogen that's readily available in many parts of the country, could free the steel industry from locating in "coke areas."

The first commercial plant to use the process will be in operation in 1959. And others are being planned.

The plant is now under construction for the Alan Wood Steel Co. at Conshohoken, Pa.

Bethlehem Steel Co. is known to be planning to build an H-Iron plant at a West Coast location, and several other steel companies are reportedly planning to use the process.

Auto Grease Fittings On the Way Out

At least one 1960 car will have no grease fittings at all, and will not need steering gear lubricant.

Teflon fabric bearings, called Fiberglide and made by American Metal Products Co., of Detroit, will be used. They have been tested for 90,000 mi. in autos without sign of wear.

The bearing is made as a perfectly spherical ball stud, around which a Teflon fiber socket is molded on assembly into a metal housing.

Best bet to date is that the Fiberglide bearing will be used in Ford Motor Co.'s forthcoming small car. However, General Motors and Chrysler also have been working toward cars without chassis lube fittings.

Fuel Cells' Threat Grows

Oil processors, despite constant improvement of their motor fuels, may stand to lose this important market if the fuel cell, highly touted again last week, wins its competition with the internal combustion engine to provide the propulsion system of the future.

The fuel cell, which converts chemicals directly into electrical energy, has been touted for some time now as tomorrow's power source (PW—Jun.6 '58,p30). But lately, optimism on the potential of this kind of energy production has gained considerable momentum.

The fuel cell got its latest boost at last week's meeting of the American Society of Mechanical Engineers. It sums up like this:

The fuel cell is now considered "an extremely promising method for generation of power," Everett Gorin and Howard L. Recht of Consolidation Coal Co. told ASME.

The coal company representatives qualified their appraisal when they reported, "Nothing can be said about the ultimate economics of the fuel cell." But, they added, "there is every indication that, by further development work, a cell could be developed with sufficient stability and high enough output for commercial use."

The fuel cell is getting consideration as an automobile power plant because of its high efficiency in fuel utilization and in energy conversion.

The Lockheed Missiles Systems division laboratories, at Sunnyvale, Calif., recently reported almost 100% fuel-utilization, and energy-conversion efficiencies of up to 70%, with fuel cells. Present-day internal combustion engines can't even approach that.

Lockheed is currently working on a fuel cell that can reportedly produce 100 watt-hours per pound, more than enough power to run a car efficiently.

Dr. Morris Eisenberg, director of Lockheed's fuel cell work, recently told PETROLEUM WEEK that the company's cell ran on "certain solids and liquids"; presented no refueling dangers; and would be of a size "not too large" to be installed in a small car.

Eisenberg also said that the fuel needed for such a cell would be comparable in volume to gasoline.

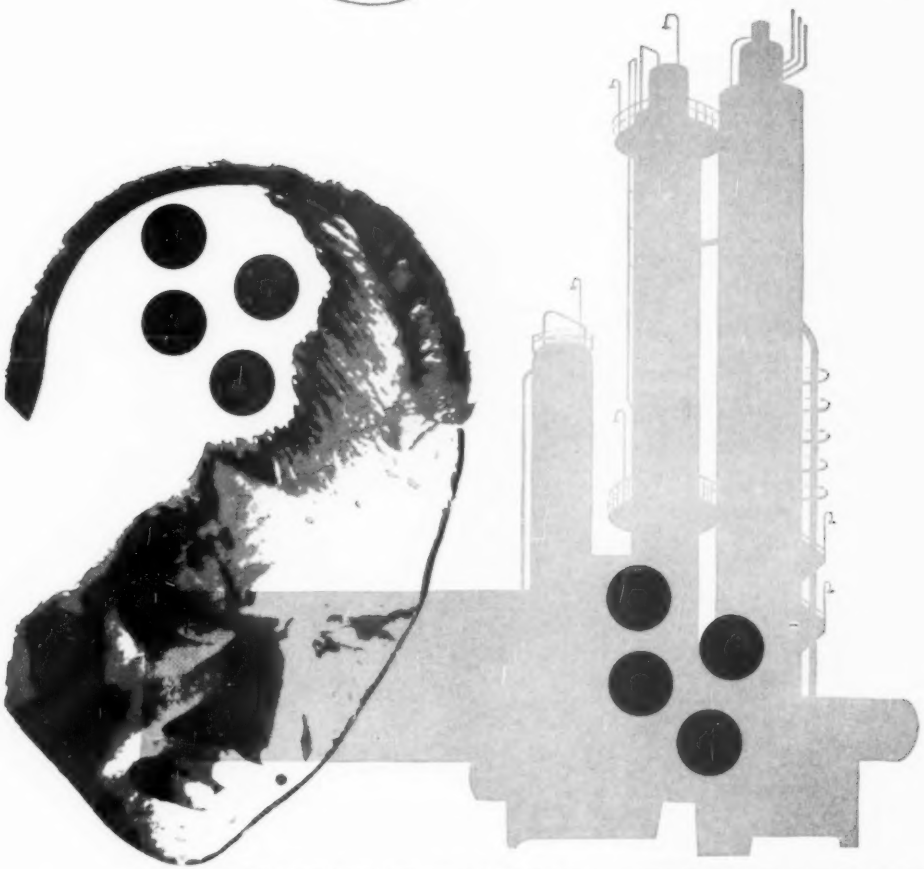
Lockheed has also been successful in avoiding poisoning of fuel-cell electrodes, a common result of electrochemical energy conversions.

The major activity in work on fuel cells now centers on determining a suitable fuel for such cells.

Fuel-cell researchers generally feel that a really inexpensive fuel, added to the efficiencies of cell operation, could turn the tide of economics in their favor.

NEW WORK on fuel cells being done by Lockheed Missile Systems division indicates that high-power, low-weight cells are possible and could compete with auto internal combustion engines in the future.

intangibles were never so **important**



CREATIVE ENGINEERING

High on the list of intangibles included in Procon construction service is what may well be termed "creative engineering". Covering every detail of the design and engineering of all processing units and auxiliary equipment, it is provided by an unusually well-organized, closely knit team of engineers and draftsmen. As a result, a Procon-built plant can be depended upon to perform with precision—to extract from every barrel of feed stock every last drop of finished product and every last penny of profit.

PROCON®

PROCON *Incorporated*

1111 MT. PROSPECT ROAD, DES PLAINES, ILLINOIS, U.S.A.

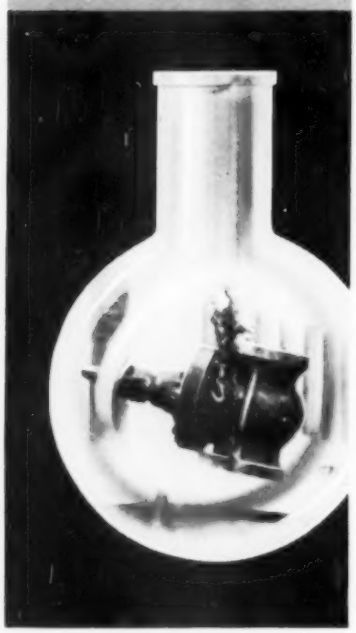
PROCON (CANADA) LIMITED, TORONTO 16, ONTARIO, CANADA

PROCON (GREAT BRITAIN) LIMITED, LONDON, W. C. 2, ENGLAND

PROCON INTERNATIONAL S. A., SANTIAGO DE CUBA

WORLD-WIDE CONSTRUCTION FOR THE PETROLEUM, PETROCHEMICAL, AND CHEMICAL INDUSTRIES

Oakite
ECP...



Best way
to save with
salvage

RESULTS show that the best way to salvage equipment is the Oakite ECP way . . . which reclaims parts in volume via chemical cleaning. At one refinery, salvage became a major cost control factor with installation of permanent Oakite tanks. They cut cleaning time *from 22 hours to 1½ hours* a batch, slashed material cost *from $1.90 a gallon to less than 23 cents.*

An Oakite ENGINEERED CLEANING PROGRAM is developed specifically for your refinery, gives detailed recommendations for everything from coolers to crackers. The Oakite engineer sticks with the job till it's done to satisfaction. Along with his experience go products and methods developed by one of the finest chemical cleaning research facilities in existence.

Send for more data. Oakite Products, Inc., 39 Rector St., New York 6, N. Y.

OAKITE ECP your economy key

In our 50th year

What's New / IN PROCESSING

Union Carbide Corp. has bought the remains of Amoco Chemicals Corp.'s Brownsville (Tex.) synthetic-fuels-from-natural-gas plant.

The plant was designed and built by Carthage Hydrocol, Inc., to produce synthetic gasoline, petroleum fractions, and chemicals from natural gas by the Fischer-Tropsch process. It failed to meet commercial expectations, and was sold to Amoco Chemicals in 1954. Last fall Amoco announced that it was giving up the project, and started dismantling the plant's equipment.

Carbide's purchase includes all the usable facilities remaining on the 306-acre tract, and the 42-mile Weslaco-Brownsville natural-gas pipeline. The company is negotiating a long-term lease for the tract itself with the Brownsville Navigation District.

Carbide will not disclose plans for the Brownsville site. But it does say that it will not continue any of the plant's previous operations. Engineering studies are under way to determine future plans for the plant, and Carbide is seeking a satisfactory natural-gas supply arrangement.

Operations at the plant will be carried on by Union Carbide Chemicals Co. and Union Carbide Olefins Co.

•

Shell Oil Co. plans three projects at its Martinez (Calif.) refinery, totaling almost $1-million.

The first project is a new effluent-control system, including a covered API-type gravity separator for wastewater treatment.

Project two is for a 3-million-gal. jet aircraft fuel storage tank on the waterfront, plus connecting lines and a truck loading rack.

The final project is a 50-ft.-diameter, 400,000-gal. pressure-storage tank for butane, which will triple the refinery's present butane storage capacity.

•

Jet airplanes, for some airlines, might introduce more problems than they solve, according to D. J. Lambert, of Vickers Armstrong Aircraft, Ltd., Weybridge, England.

Speaking before the New York meeting of the American Society of Mechanical Engineers, Lambert pointed out that it costs about $7 a minute to keep a pure jet circling above an airport waiting for its turn to land. Turboprop planes, on the other hand, cost only $4 a minute. A fleet of 20 pure jets, with an average of four minutes delay in landing, would cost about $2-million more a year than comparable turboprops.

The speed difference, he said, is enough to justify the extra cost.

•

Stockholders of McColl-Frontenac Oil Co., Ltd., will meet in Montreal on Dec. 16 to vote on whether to change the company's name to Texaco Canada, Ltd.

McColl-Frontenac is owned by The Texas Co. If the stockholders and the Canadian government approve, the new name will be used starting Feb. 2, 1959.

•

The claim that propylene is harmful in LPG motor fuel is not true, according to the Natural Gasoline Assn. of America.

NGAA's LPG committee ran a series of tests on several widely used makes of bus and tractor engines with fuels ranging from pure propane to blends containing 47% propylene.

The tests reportedly showed (1) that engines troubled by knocking, burned valves, and other troubles when using the propylene blends also had these troubles when using pure propane, and (2) that engines of better design will not have trouble with fuels containing up to 50% butane or up to 47% propylene.

•

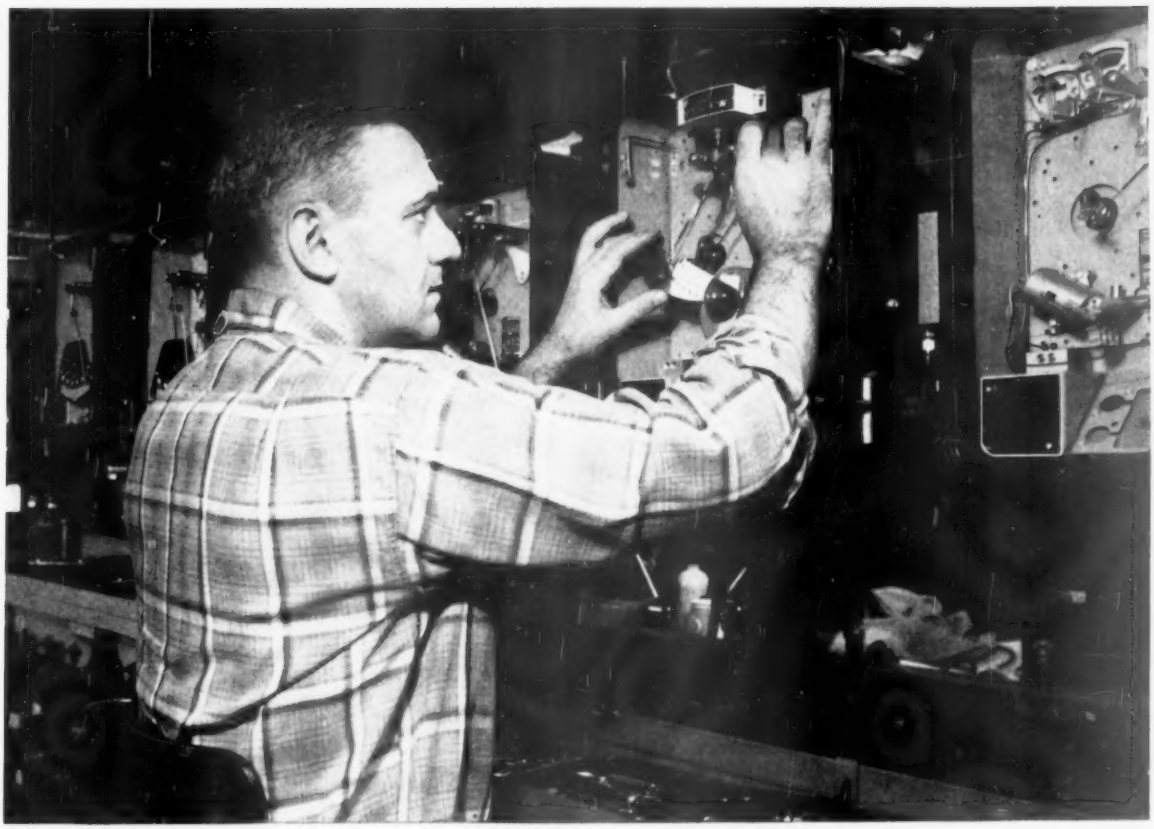
Shell Oil Co. plans to build a gas liquids recovery plant in Mississippi. It will be located in the Little Creek field, about 10 mi. northeast of McComb. The capacity of the plant will be 5-million cu. ft. of gas a day, with provisions for doubling that when necessary.

•

Cabot Carbon Co.'s gas processing plant near Glenrock, Wyo., is expected to go on stream this month.

The plant will have a daily capacity of 8-million cu. ft. It is a refrigeration type plant, and will produce butane, propane, natural gasoline, and 6-million cu. ft. a day of utility-grade residue gas.

Foxboro makes a better instrument . . . or Foxboro doesn't make it!



Factory alignment of the M/40 Controller — the instrument that introduced the first reliable, close-tolerance control for industrial processing.

FOXBORO
REG. U.S. PAT. OFF.

Creative Design and Manufacture of Instruments and Instrument Systems for Measurement and Control of Process Variables. The Foxboro Company, Foxboro, Mass., U. S. A.

In financial aid to education . . .

What Should Business Do Now?

Now that the federal government is entering the field, should business firms stop giving financial aid to our colleges and universities?

This question is now being discussed by business directors throughout the country. The discussion is prompted by the near-billion-dollar program of federal aid to education passed by Congress a few months ago. For if the federal government, with its access to billions in taxes, is assuming responsibility for the financial welfare of education, should not business get out of the way and let the government take over? This is the general way the question is being asked.

The answer is a resounding NO.

What The Federal Program Does

The new federal program makes it possible for the government to spend the imposing total of $900 million for aid to education over the next four years. There are still many loose ends in the program. But already it's quite clear what such funds will — and will not — do to help relieve the financial plight of our colleges and universities.

First of all, the program is not going to solve any financial problems in education overnight. The program is just barely underway. So far no money has actually been allocated, and Congress has appropriated only $10 million — less than 5% of the total.

More important, there is very little in the total program which will result in direct aid to colleges and universities. The program does set up fellowships to train college teachers. But most of the aid will eventually be channeled through the states to primary and secondary schools. The main focus of the program is education for national defense — strengthening science, mathematics and foreign languages in elementary and secondary schools, together with grants for counseling, testing and research.

The one big item for higher education is a $295 million student loan program, which will help needy students pay tuition and other fees. But tuition rarely covers the full cost to the college of educating a student. So the net result could well be an additional financial strain on our institutions of higher learning.

For the three most pressing financial needs — faculty salaries, scholarship grants and new plant and equipment—colleges and universities must still rely heavily on help from the business community. And it would indeed be a major

misfortune if the recent actions of the government put a blight on this growing and substantial support to higher education.

In the last ten years, business has expanded its financial aid to education by more than four fold. In 1948, contributions were only $24 million. In 1957, such aid reached an estimated $125 million. Moreover, corporations have been putting a larger proportion of their total charitable gifts into education. In 1950, the percentage was only 17%. By pre-Sputnik 1956, the share had already increased to 34%, according to figures recently released by the Council for Financial Aid to Education.

Why Business Must Help

The most compelling reason for increasing business aid to higher education — at an even faster rate—is that our colleges and universities desperately need financial help. It is that simple. Private contributions to higher education must average at least $400 million over the next ten years if our colleges are to meet rising operating costs and raise faculty salaries to decent levels. Despite the growth in business contributions, we are still well below that goal.

If our colleges cannot solve their mounting financial difficulties through voluntary help from business firms, alumni and communities — then it is to be expected that federal aid ultimately will be mobilized in a big way. In principle, if not in dollars, the 85th Congress has paved the way. Indeed, a large federal scholarship program was squeezed out of this year's legislation only in the course of last-minute compromises. And Arthur S. Flemming, Secretary of Health, Education and Welfare, has urged that the next session of Congress restore the scholarship program.

About any federal rescue operation for higher education, two things are quite clear:

(1) **Such aid will come too late to prevent irreparable harm resulting from the current shortage of funds.** The need for help is urgent and immediate.

(2) **With federal taxes taking over half of all corporate income, any federal program in the end will be financed in large part by the business community.**

An Opportunity

So, viewed narrowly, it is in the selfish interest of business firms to aid our colleges and universities now, rather than wait and be forced to pay later on. By doing so, they ensure that business will have a continuing supply of well-trained graduates. They take advantage of the tax laws for charitable contributions which mean the government in effect assumes more than half the cost of business aid to education. And they win gratitude for a voluntary and generous act.

Viewed in the broad public interest, the business community has an opportunity to perform a financial rescue mission in education which could well be the key to successful survival, not only of our present system of higher education, but also of the nation itself.

As previous editorials in this series have pointed out, a very small share of the net income of business firms — about 1% — would do the job. Certainly business must not be distracted from this opportunity by the new venture of the federal government in financial aid to education.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

POTENTIAL

. . . here's *full* potential for oil refineries, chemical and heavy industrial plants, because . . .

FABRICATION . . . of all types of equipment *(Fractionating Columns, Gas Columns, Pressure Vessels, Plate and Heavy Steel Work, Special Machines, Autoclaves, Shells, Base Bridge Girders)* . . . is performed to order . . . to specification.

MACHINING . . . fully equipped, flexible facilities for machining to close tolerances, regardless of product size or design.

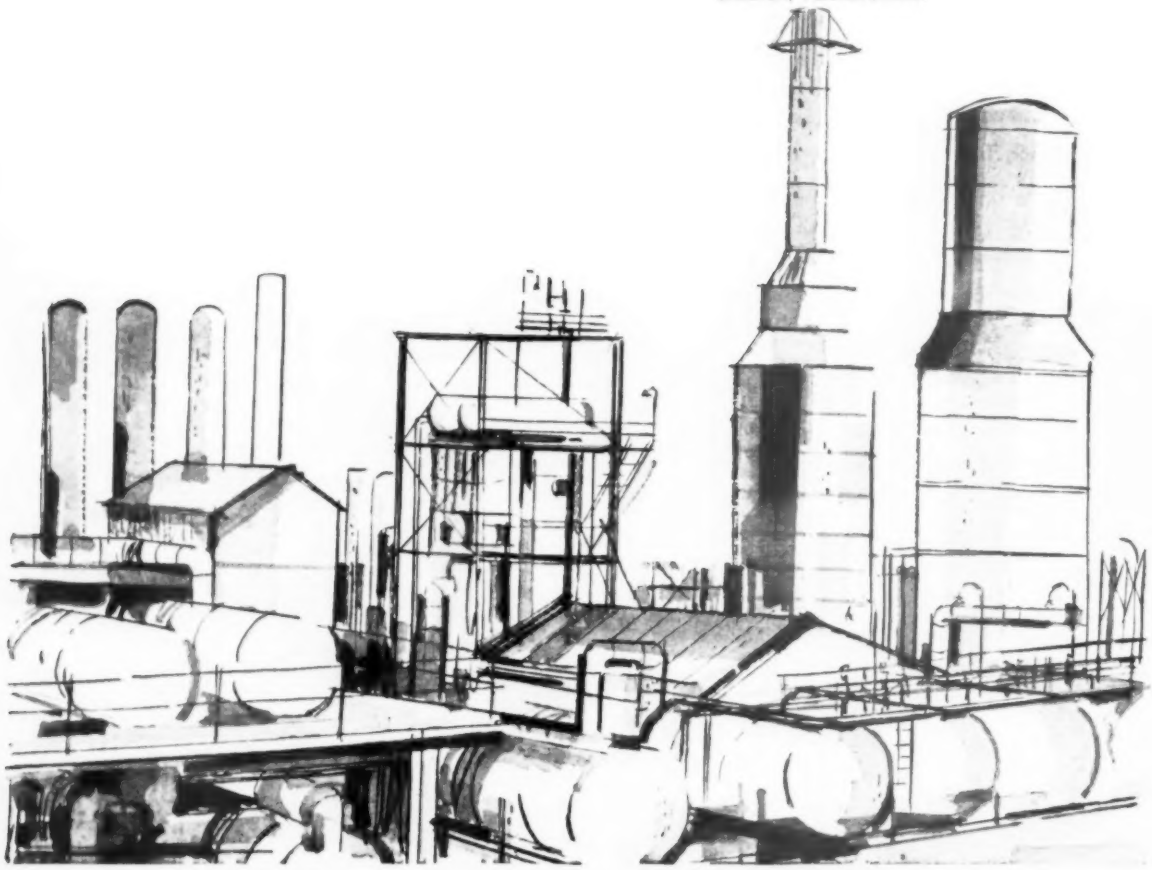
STAINLESS . . . separate, integrated shop for stainless fabrication protects against contamination by ordinary steel.

DELIVERY . . . by rail, truck or inland, coastal or overseas waterway.

Through integrated, efficient operation, Sun Ship can reduce costs . . . increase your POTENTIAL. Call for an estimator or representative.

SUN SHIP

BUILDING & DRYDOCK CO.
CHESTER, PENNSYLVANIA



Coming: More Gas For Winter Use

Texas Eastern Transmission Corp.'s new "winter service agreements" offer natural gas distributors a steadier gas supply when they need it most.

Natural gas will be an even more formidable opponent for oil in U.S. heating markets if Texas Eastern Transmission Corp.'s new kind of "winter service agreement" catches on.

The new Texas Eastern winter service agreements are designed to provide utility-company customers with maximum gas requirements during the winter heating season (mid-November to mid-March) for three years.

The lack of this kind of solid supply line during winter months has been just about the only brake on the recent growth of natural gas as a fuel for space heating.

If gas transmission companies in general can guarantee the kind of service Texas Eastern guarantees in its new winter service agreements, gas utilities will become even more aggressive in pushing gas heat than they have been. This would likely result in a faster growth rate for gas heat—at the expense of heating oils—which would reverberate all the way back to both oil and gas wellheads.

Texas Eastern calls its new winter service agreement unique in that it offers a combination of natural gas peaking and storage.

The company contends that its new winter service "is an entirely new concept," because "other pipeline companies have offered winter peaking service, or storage service, but not in combination."

Texas Eastern will provide the service by moving gas for "winter service" customers during "off" months (from spring through fall) for storage near the areas where the gas is needed during the winter.

The key factor in such a plan is the availability of economical gas storage facilities. Texas Eastern is one of a growing number of companies that is relying on underground caverns to provide such storage (page 45).

Texas Eastern will use the Oakford field, in Westmoreland County, Pa., for its initial gas storage, and will later add to its underground storage capacity by using parts of the Leidy and Tamarack fields, in Clinton and Potter Counties, Pa.

Texas Eastern expects to move almost 9-billion cu. ft. of additional gas this winter because of the new winter service.

The company has already firmed up agreements for this winter service in many parts of the country, contracting with these companies: Algonquin Gas Transmission Co.; Arkansas-Missouri Power Co.; Consumers Gas Co.; Illinois Electric & Gas Co.; Indiana Gas & Water Co.; Mississippi Valley Gas Co.; New Jersey Natural Gas Co.; Ohio Valley Gas Co.; Philadelphia Electric Co.; Philadelphia Gas Works; Public Service Electric & Gas Co.; Transcontinental Gas Pipe Line Corp. (for Consolidated Edison Co., of New York City, and Long Island Lighting Co.); and Waynesburg Home Gas Co.

Texas Eastern will deliver all this additional gas without building new transmission facilities. But it will have to build to reach the goal of 20-billion cu. ft. a season that it has set for its winter service agreements for the 1960-1961 heating season.

The company estimates that it will have to invest about $46-million for additional pipe, compression facilities, and underground storage facilities that will be needed to fulfill these future winter service commitments.

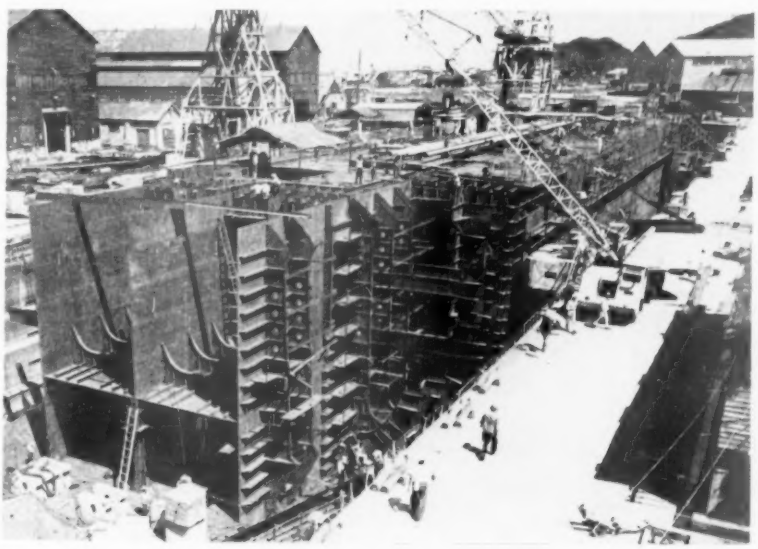
The winter service program is expected to boost Texas Eastern's annual income considerably.

Texas Eastern, after all, is in the business of transporting gas, and the new winter service agreements will apparently mean a good deal more of such business.

Orville S. Carpenter, TE president, recently told a meeting of the company's stockholders that wide acceptance of the new winter service agreements indicates that over-all customers' demands will soon exceed previously-estimated sales figures.

"We'll go ahead of our projected estimates this year," another company official adds, "and indications are that the total available volume will be substantially oversubscribed."

And more business means more



First Taiwan-Built Tanker Due Soon

The Chinese Nationalists plan to start bringing Persian Gulf crude into Taiwan early next year in this tanker, now under construction at the Ingalls-Taiwan shipyard, at Keelung. The ship, the first tanker to be built on Taiwan, will be 36,000 tons, deadweight. It will be launched for General Tanker Corp. in January, and shortly after will be leased to Gulf Oil Corp. Construction of a second 36,000-tonner will begin at the Keelung yard early next year.

profits: Carpenter told the same meeting that the increase in Texas Eastern's revenues because of such deliveries would be "substantial."

"Substantial" may mean as much as an extra $13-million a year when the goal of 20-billion cu. ft. per year is reached, according to Texas Eastern figuring. And winter service business is expected to add to the company income handsomely even in this, its first heating season.

Texas Eastern feels it can derive other important advantages from the winter service contracts—such as reduced over-all cost of moving gas, and easing of the pressure in its gas field buying.

The closer a gas transmission company can keep its deliveries to its capacity, the greater the efficiency of its system, and the lower the per-unit cost of moving gas. Texas Eastern, like many gas lines, has some unused capacity. By moving winter service gas to storage during "off" months, the company will operate at near capacity almost all year round.

At the other end of the operation, Texas Eastern must pay gas producers for a certain minimum volume of gas under the "take or pay" provisions of most contracts, whether it takes the full amount or not.

The ability to take gas in the summer, and store it for later use, will make it possible for the company to meet its minimum-take obligations all year round.

There are some real benefits for the utility customer too, according to Texas Eastern.

Heretofore, Texas Eastern points out, gas distributors have been offered "extra" gas during winter months on a one-shot, short-term basis only, with no facilities especially dedicated to such delivery. Now, TE figures, these gas utilities can plan for an orderly expansion of their home-heating business, knowing that gas will definitely be available each winter for this market.

The new "winter service" agreements will be put into operation as soon as the expected Federal Power Commission approval arrives—which could be "any time now."

TE was ready to put its winter service agreements into operation in mid-November, but FPC approval, which seems assured, was delayed.

Midwest Gas Before FPC Again

Another round in the Midwest gas-proposal marathon opens next week, when the Federal Power Commission begins hearings on the first of several revised plans to bring more gas into the aera.

Early last month (PW—Nov.7'58, p18), FPC denied all major proposals for additional natural gas service for the Midwest, but left the door open for revisions of the denied applications.

On Dec. 17, FPC will hear the first of these revised plans, the twin proposals of Midwestern Gas Transmission Co. and Tennessee Gas Transmission Co.

Midwestern now proposes to build a 30-in. mainline from Portland, Tenn., to Joliet, Ill., and two compressor stations along the way, to provide 360-million cu. ft. of gas daily for the Chicago area.

TGT is now asking permission to build about 160 mi. of 36-in. line paralleling sections of its existing system in Louisiana and Mississippi to supply Midwestern with gas.

Other companies' revised requests will come.

SPECIALIZED MANAGEMENT

works for Oil Properties in trust

PERSONAL TRUST DEPARTMENT
MERCANTILE NATIONAL BANK
DALLAS, TEXAS

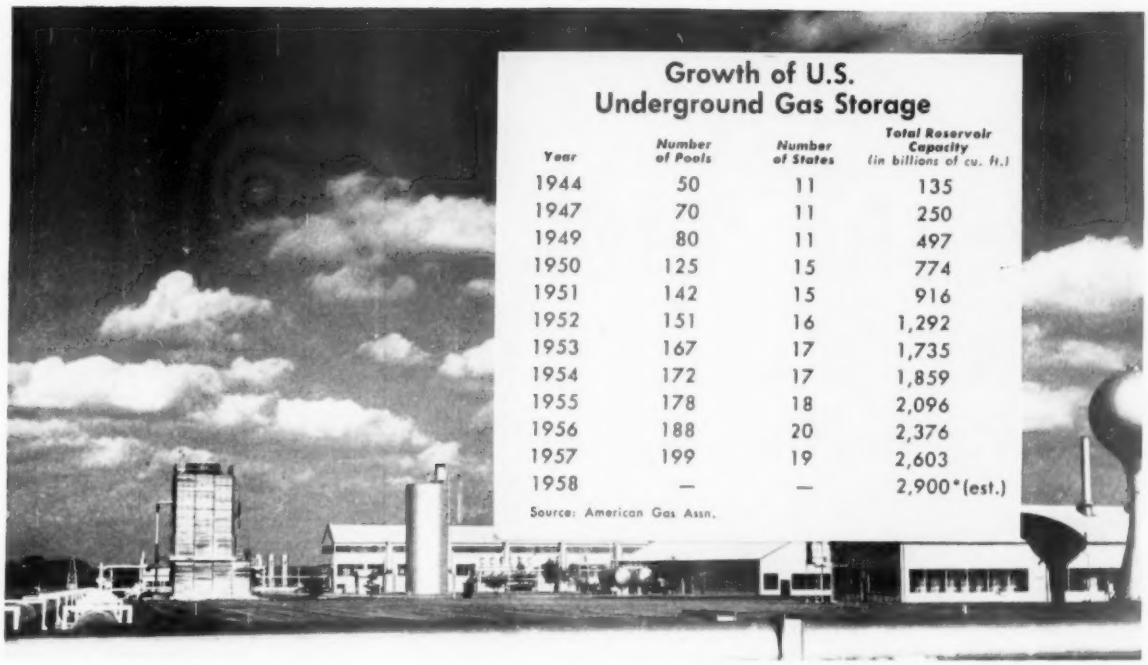
All day long, it's RUSH—RUSH—RUSH!

But there's still time to be well informed on the whole oil industry—with Petroleum Week's variable-speed reading

You get a fast-reading summary of every story, just by scanning the bold-face type. This gives you the essential facts and main points of interest in quick, capsule form.

The complete details of each article follow in light-face type. To get the whole story, on items of particular interest, just read the light-face type as well as the bold.

This variable-speed reading technique, pioneered by Petroleum Week, was designed for busy men like you—to give you the industry-wide oil information you want and need, in the shortest possible time.



Growth of U.S. Underground Gas Storage

Year	Number of Pools	Number of States	Total Reservoir Capacity (in billions of cu. ft.)
1944	50	11	135
1947	70	11	250
1949	80	11	497
1950	125	15	774
1951	142	15	916
1952	151	16	1,292
1953	167	17	1,735
1954	172	17	1,859
1955	178	18	2,096
1956	188	20	2,376
1957	199	19	2,603
1958	—	—	2,900*(est.)

Source: American Gas Assn.

STEADY INCREASE of underground gas storage will continue because of the growing use of gas in winter space-heating.

More Gas Is Going Back Underground

Underground storage of natural gas will keep growing at its current rate of about 250-billion cu. ft. a year for at least the next several years, according to most gas authorities just surveyed on the subject by PETROLEUM WEEK.

Underground storage of gas is the use of played-out natural gas fields as a place to keep gas during its low-demand months. In such projects, the gas is pumped into abandoned fields as near as possible to the markets the gas will serve. Several hundred miles can separate the storage facility and its markets—or they can be within a few miles of each other.

The use of such fields for gas storage was so uncommon until 1944 that no one bothered to total the amount of gas so stored.

The utilities were the first to take it up in a big way, and they have increased their use of such storage significantly. Now many gas transmission companies are finding that underground storage has payout for them too.

The American Gas Assn. now makes yearly estimates of the nation's underground gas storage capacity. As of Dec. 31, 1957, according to AGA's subcommittee, U.S. underground storage capacity for natural gas totaled 2.6-trillion cu. ft. (table).

The AGA committee won't have its 1958 figures completed until some time in March, at the earliest. But gas-industry sources who watch development of such projects closely assure PETROLEUM WEEK that the 1958 increase in storage capacity would be "at about the same rate as last year."

This would put capacity near 2.9-trillion cu. ft. as of Dec. 31.

At the same time, these sources said, the same rate of gain "seems reasonably certain" in the years immediately ahead.

The reason for this "sure-fire" gain, it's felt, is that the space-heating market for natural gas will maintain its current growth rate, making it necessary for companies to store more gas during "off" months in order to have enough for the heating season.

One gas man put it this way: "The more gas used for space heating, the more important storage during off months becomes. That's because it's a physical impossibility to move all the winter gas you need when you need it. You have to move a lot of it at other times of the year, and this gas has to be stored.

"Underground storage is by far the most economical way of holding onto this gas until you need it."

One of the largest gas storage pools in the country is now being completed in the Leidy and Tamarack fields of north-central Pennsylvania. The field will store gas for later use by East Coast consumers.

The Leidy-Tamarack field is a good example of the interest gas pipeline companies are now showing in underground gas storage. Transcontinental Gas Pipe Line Corp., Texas Eastern Transmission Corp., and New York State Natural Gas Corp. will use the field to store gas for their East Coast customers.

New York Natural, operator of the project, is now building a compressor station (PW—Nov.7'58,p90), reworking all wells in preparation for injection of gas for storage, laying lines from wells to the pump station, and erecting houses for station personnel.

The storage pool is expected to be finished and in operation during the 1959-1960 heating season.

It will have an ultimate capacity of about 106-billion cu. ft. of gas. Of this amount, 45-billion cu. ft. will be cushion gas—gas used to provide necessary reservoir pressure. The rest will be available for distribution to Pennsylvania, New Jersey, and New York markets.

Transco will be the first company to draw on gas stored in the field, when it completes its 192-mi. line from the field to its mainline in New Jersey sometime next year.

RIPS OUT
MORE ROCK

faster • cheaper • deeper

CROSE WADSWORTH *heavy duty*
ROCK RIPPER

Built with either drawbar or track frame mount, here is the original rock ripper that puts more profit dollars into pipeline construction work. The Crose-Wadsworth Heavy Duty Rock Ripper eliminates up to 80% of blasting operations . . . digs right in and goes to work where a trenching machine can't! Save time — save money — with this machine. Write today for new brochure.

m.j. Crose
MANUFACTURING COMPANY, INC.

2765 DAWSON ROAD • TULSA, OKLAHOMA • PHONE WEbster 6-2171 • New York, N. Y. Ph. BRyant 9-2236 • *Denver, Colorado Ph. EMpire 6-0332 • *Houston, Texas Ph. Mission 5-2484 • *Elizabeth, N. J. Ph. ELizabeth 4-4244 IN CANADA: CROSE-CURRAN LTD., *Edmonton, Alberta; *Toronto and *Ft. William, Ontario — *Warehouses in 6 locations.

What's New
IN TRANSPORTATION

Biggest Tanker Diesel Planned in Japan

The Japanese will reportedly build a tanker with a whopping 22,000-hp. diesel engine.

The tanker is said to be a 65,000-tonner now on order at the Yokohama yard of Mitsubishi Nippon Heavy Industries for Olympus Shipping & Trading Co. The ship, scheduled for delivery in August, 1961, will be chartered to Gulf Oil Corp. and will fly the Liberian flag.

Largest diesel engines now used to power tankers are in the 15,000-hp. class.

•

Northern Natural Gas Co. is asking for Federal Power Commission permission to add 326 new midwestern communities to its system.

Northern plans to add 130-million cu. ft. of gas a day to its mainline capacity in order to bring gas to 170 communities in Iowa, 119 in Minnesota, 17 in South Dakota, 12 in Nebraska, seven in Wisconsin, and one in Illinois.

•

Pure Oil Co.'s first tanker shipment of crude from Lake Maracaibo, Venezuela, is on the way to this country. The SS Republic is carrying the shipment, some 119,000 bbl., to Pure's Gulf Coast refinery at Nederland, Tex.

The crude comes from a 28,000-acre Centro Lago concession owned by Pure in association with Signal Oil & Gas Co., Standard Oil Co. (Ohio), and Hancock Oil Co.

•

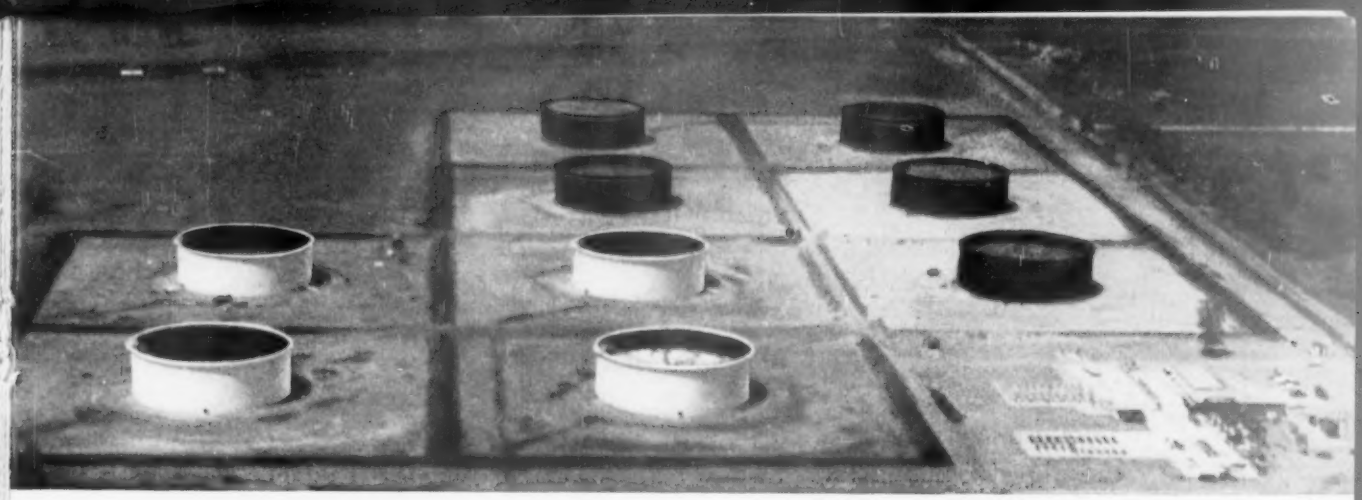
The Federal Power Commission has given temporary authorization to Natural Gas Pipeline Co. of America to add $3.8-million worth of gathering facilities to its system.

The project will enable Natural to deliver an additional 185-million cu. ft. of gas daily. Cities Service Gas Co. will provide much of the gas from Carter County, Okla.

•

Gulf Oil Corp. has just begun to build a $1.2-million bulk plant on the Mississippi River at St. Louis.

The plant will have six storage tanks, and facilities to load 12 tank cars simultaneously.



AGAIN...EXPERIENCE PAYS OFF HANDSOMELY

9

new double-deck floating roof tanks for TECUMSEH PIPE LINE

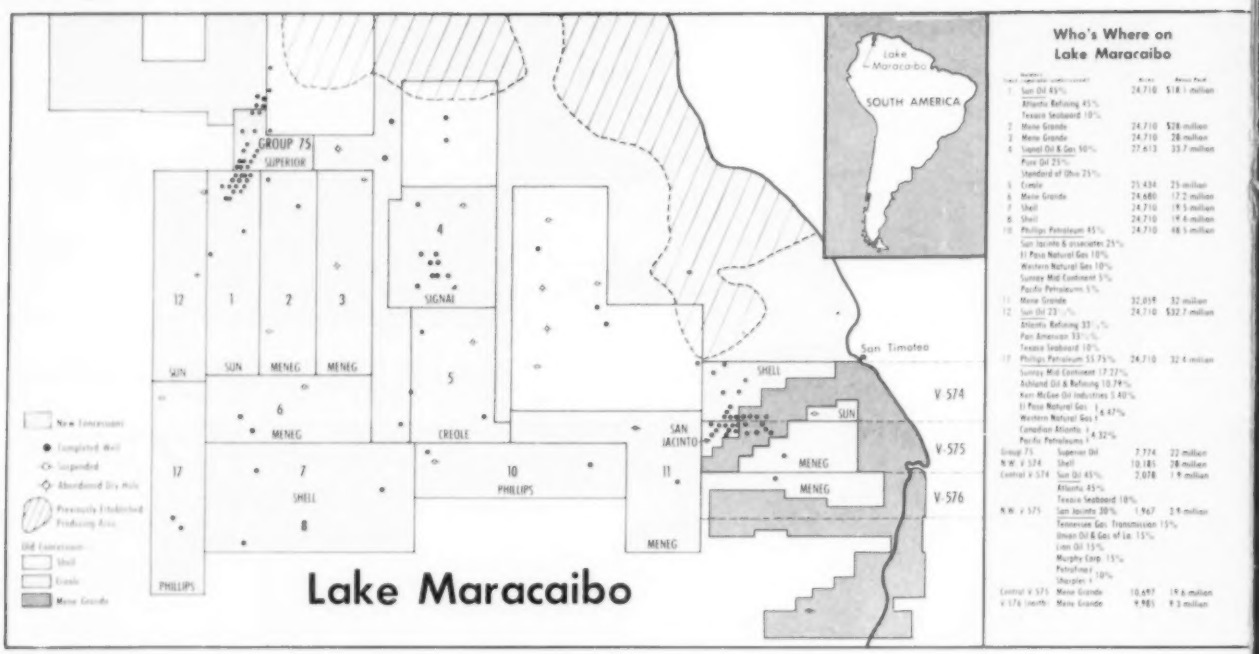
The new Hartsdale Station at Schererville, Ind., stores crude on a standby basis for transmission to Cygnet, Ohio, through the 20″ Tecumseh Pipe Line. Nine Graver Double-Deck Floating Roof Tanks, with the effective patented Graver Vapor-Stop Seal, were selected to handle a large part of the tremendous storage requirements. The nine Graver tanks will hold 900,000 bbls. of crude. Each is 134′ in diameter by 43′ high, with a capacity of 100,000 bbls.

Operated by Sinclair Pipe Line Company for itself and co-owners Ashland Oil & Refining Company and The Pure Oil Company, the new storage depot is one of many where Graver floating roof tanks have been installed over the years. Graver's long experience in fabricating and erecting conservation tankage pays off handsomely when Graver Double- or Single-Deck Floating Roof Tanks are specified. Trouble-free operation and long life are understandably inherent in Graver designs.

Plants and Offices Across America

GRAVER®

GRAVER TANK & MFG. CO., INC.
EAST CHICAGO, IND.



DISCOVERIES dotting new concessions are being developed fast, with three areas already in regular production as . . .

Big Climb Starts in Maracaibo Output

CARACAS—The payout has started for 27 companies that laid out $420-million for new Lake Maracaibo concessions in 1956 and 1957.

By the end of the year, they're expected to have crude export capacity of around 200,000 b/d from new fields in midlake and off the eastern lake shore. And that figure is only a starter.

Around 60 wells account for nearly all the production to date from the new acreage. But development drilling is in full swing in three areas and is adding steadily to the production potential.

Wells have been completed on all but three of the 18 new leases in the lake (map). Sun's Block 12, its Central V-574 tract, and Mene Grande's Block 3 are the exceptions.

Biggest producer from the new concessions is Superior, whose output has already topped 65,000 b/d.

Sun is currently averaging 30,000 b/d, and Signal 17,000 b/d. In its new lake concessions, Mene Grande is averaging 27,000 b/d, and San Jacinto recently hit 27,000 b/d. The latter will boost output after conversion to a permanent flow station.

Production from the new leases has helped offset the drop this year in Venezuela's over-all output, caused by U.S. import restrictions and depressed world markets.

Production in October, for example, was almost 2.7-million b/d—close to the 1957 monthly average.

This is a timely point in favor of the 1956-1957 grant of new Venezuelan concessions, which has been under fire in some political quarters recently, preceding this week's elections (PW—Oct.31'58,p28).

One of Venezuela's stated purposes in awarding those concessions was to bring in additional companies, and thereby diversify Venezuela's sales outlets.

Up to 1956, there were only three operators in Lake Maracaibo: Creole, Shell, and Mene Grande. Now there are eight, with another 19 companies sharing ownership of the concessions.

In general, drilling results to date show that midlake oil accumulations are different from those in the older fields along the eastern shore.

The Midlake oil pools are largely fault-trap reservoirs; in the older fields, the pools are found in the stratigraphic trap.

Pay sands, as expected, are almost entirely in the Miocene and Eocene. But the lake's first Cretaceous production has been turned up in two wildcats.

Sun's SVSX-1 on Block 1, and Mene Grande's 2-Y-1X on Block 2, each found 17-20 ft. of pay in the Meta 1 sand of the Cretaceous series. The SVSX-1 tested around 500 b/d of 36.7-gravity crude.

There is still no Cretaceous limestone production in the lake, but Superior is aiming at that formation in its Agua 139-1, a 17,000-ft. wildcat now being drilled on a recent 3,700-acre farmout from Creole off the northwest lakeshore.

I. The Golden Lane

Prize discovery to date is probably the Golden Lane, a trend stretching northeast from Sun's Block 1, across Superior's Group 75 and a corner of old Creole concessions, and into Shell's Lagomar acreage.

Production from the trend is currently around 75,000 b/d. Here's the present status of operations in the area:

- **Sun has just completed two more producers on Block 1, for a total of 17.** It is now drilling two more tests, Nos. 20 and 21 SVS.

The latest wells are No. 18 SVS, completed for 8,850 b/d, and No. 19

SVS, completed for 8,825 b/d, both through ¾-in. choke.

Test production of earlier completions averaged around 8,000 b/d.

All of the wells were completed in the Eocene between 7,700-9,800 ft., with the exception of No. 1 SVSX, which is outside the Golden Lane. Six of the wells were dually completed.

No further wildcats are planned on the block at present. Two rigs are at work on development drilling, averaging one completion a month.

Sun plans to produce 32,000 b/d for the rest of the year. Crude averaging 32-gravity is barged to a new loading terminal at Punta Palmas, south of Maracaibo, on the west side of the lake. Sun is operator of the terminal, owned jointly with the Signal Oil & Gas group. Sun and Signal each have two 176,000-bbl. tanks, and Signal is adding two more.

• **Two wildcats currently suspended on Sun's Block 12 are termed "disappointing."** No information has been released on the tests.

• **Superior is drilling its 15th and 16th wells on Group 75,** with 14 completions behind it. The company, which paid a record per-acre bonus of $2,833 for this tract, was the first to tap the Golden Lane trend, with its No. 1 Lama wildcat.

Its 14 wells have tested an average 8,000 b/d of 30-33-gravity crude. Seven were dually completed in the Eocene, and two in the Eocene and basal Miocene.

Production is indicated in all of the lower Eocene sands from C-1-X through C-7-X, as well as in the basal Miocene, although not all of these are actually being produced.

All of Superior's production so far is on the western half of the lease, but platforms have been built for wildcats in each of the eastern corners.

Superior ferries its crude to the La Estacada terminal of Talon Petroleum, where it rents tankage. A future pipeline 55 mi. long is planned from Group 75 to the lake's east shore, then north to La Estacada. Superior's operations base is a new $4-million terminal at San Francisco, on the western lake shore.

• **Creole has now completed four wells in the Golden Lane trend, offsetting Group 75 in an old concession.** The company has mapped 20 locations it believes will be productive on the trend. It has two rigs running in the area, and will probably start producing 15,000-20,000 b/d next spring.

• **Shell has completed three wells on the Golden Lane trend** and is now drilling a fourth—all on its old concession north of Superior's block. The first was an offset to Group 75; the other two are further north along the trend.

The Golden Lane is marked by parallel faults: UD-45 on the southeast side, and Icotea on the northwest.

Production is on both sides of the UD-45 fault, but the flush wells are on the downside, in the middle of the trend. Net pay thickness in Superior's wells on the downside ranges from 800 ft. to 1,326 ft., averaging around 1,100 ft. Sun also reports an average of over 1,000 ft. in the middle of the trend.

On the high side of the UD-45 fault, the lower Eocene sands are partially truncated, and net pay thickness is considerably less. It ranges from 216 ft. to 360 ft. in four Superior wells.

II. Other Midlake Finds

The first midlake discovery outside the Golden Lane to go into regular production is on Signal's Block 4.

Signal expects to have a producing potential of nearly 30,000 b/d by year's end. The first 155,000 bbl. of crude from the block was shipped to California last month.

It's expected that 10 or 11 wells will soon have been completed and tied in to a flow station near the discovery well. The latter, No. 2-X Centro Lago, was brought in a year ago, toward the center of Block 4, after an initial wildcat was suspended in the northeast corner.

The latest completion, No. 9 Centro, is ¾ mi. due east of the discovery well. It flowed 44-gravity clean oil at the rate of 2,400 b/d. Two wells are now being drilled as offsets to Nos. 8 and 9.

Production is from the C-2, C-4, C-5, and C-6 Eocene sands. One of the wells, No. 4-X, showed a potential on test of 17,000 b/d from the four sands. The C-2 zone, just below 10,000 ft., yields 27-gravity crude. The C-4 sand, encountered between 11,000-500 ft., yields crude of around 35-gravity. And the C-5 and C-6 sands, between 12,000-500 ft., yield 41-43-gravity crude.

Unlike the Golden Lane, Signal's Centro Lago field on Block 4 has a full B section in the Eocene, and Signal hopes to find some production in B sands on the east side of the block.

Platforms are built for three more wildcats on Block 4. After that, Signal will go back to No. 1-X, and carry it below the top of the C-zone series, where it was suspended. Chances are believed good for completing it as a producer.

To the south, Creole says the western half of its Block 5 appears to have "very prolific" potential. But the company has no plans for developing production in the area at present.

Four producers and one dry hole have been drilled on the block and on an adjoining finger of an old Creole concession. The two wells adjoining Block 5 tested 1,600 b/d and 5,000 b/d respectively. In the northwest corner of the block, the CLA-5 tested 3,700 b/d in the Eocene. On the eastern side, CLA-4 was a dry hole. And CLA-2, in the southeast corner, is a "small producer."

Most of the wells were drilled below 13,000 ft. to penetrate the entire prospective section. Crudes range from 23- to 31-gravity.

Creole plans to keep one rig active in the area. It is currently drilling CLA-7 near the center of Block 5.

South of Creole's Block 5, on Block 10, Phillips Petroleum has now made a second discovery in its second wildcat, 9½ mi. east of its initial discovery this year in the northwest corner.

The first discovery well, LSG-0-1, tested 4,080 b/d of 25-gravity crude from the Eocene. A nearby development well, LSG-0-3, was carried to 13,503 ft. and suspended after testing.

The second discovery, LSG 16-2, was drilled to 14,624 ft. and completed in Eocene sands at the rate of 3,336 b/d of 18½-gravity crude through a small choke.

The two contract rigs on the block are currently drilling offsets to the new discovery.

To the west, on Block 17, Phillips has announced a major oil find in its third test after establishing initial production with its second.

On final production tests, the new well, LPG 14-3, flowed at the rate of 6,600 b/d of 33.8-gravity crude through ¾-in. choke from a "thick section" of Eocene pay.

The well is just under 2 mi. southeast of LPG-13-2, the initial discovery. That well was carried to 14,163 ft. and completed in September, but no details have been released. The first wildcat on the block was suspended in the northwest corner last spring.

On midlake Blocks 2, 3, 6, 7, and 8, Mene Grand and Shell have completed a total of seven wells at widely-scattered locations:

• On block 2, Mene Grande completed one 300 b/d Cretaceous producer in the northwest, and a second wildcat, about 3 mi. southeast,

...his house of wonders

Today the oil refinery is a curious tangle of tubes and towers. But soon it will begin to deliver its benefits far and wide. It will fuel and lubricate power machines. It will help to answer the rising demand for energy from Asia, Africa and the lands of the Pacific.

Standard-Vacuum operates wholly within these areas, exploring, drilling, producing, transporting, refining and marketing oil to meet the growing needs of densely populated countries.

These peoples are resolved to build better lives for themselves and their children. And Stanvac will be there helping, all the way.

STANDARD-VACUUM OIL COMPANY **POWERS PROGRESS**

White Plains, New York

that may make 1,000 b/d. It apparently has resumed drilling in a third wildcat that had been suspended in the southwest part of the block.

- On Block 3, Mene Grande has drilled two wildcats. One, in the northeast corner, was tested and suspended in October. The other, near the center of the block, was abandoned.
- In Block 6, Mene Grande has two wells completed in the southwest, one suspended near the north boundary, and one drilling at the eastern end.

The two completions each tested 1,200 b/d, one of them producing 37-gravity oil, the other 32-gravity.

- In Blocks 7 and 8, Shell recently completed three wells—VLE-196X, 198X, and 212X. They are reported as testing some 2,000 b/d.

III. The Ceuta Area

Off the eastern lake shore, the Ceuta area is the center of greatest activity in the new concessions outside of the Golden Lane.

The discovery well was drilled by Mene Grande on an old concession in 1956, just before adjoining new acreage was put up for bids. Mene Grande won three of the new concessions, another went to Shell, and two more to the groups headed by San Jacinto and Sun.

Ceuta pay sands total several hundred feet in the Miocene and Eocene. Some wells are dual completions.

Mene Grande now has nine wells hooked up to its Ceuta flow station. Its output in the area is already almost equal to production from its old shoreline strip. A 24-mi., 16-in. pipeline, with 150,000 b/d capacity, was strung to Mene Grande's Bachaquero terminal last year.

The company has awarded a contract for 50 additional concrete platforms for the area, to be built over a period of time. Mene Grande plans to keep four rigs active on the lake through 1959, on both wildcat and development drilling.

Mene Grande has completed three wells on its new concessions in the Ceuta area—in Central V-575, in Northwest V-576, and in Block 11 to the southwest, where it tested 3,000 b/d of 32-gravity crude from the Eocene. Another wildcat on Block 11 was suspended.

In the same area, San Jacinto has completed ten wells on its Northwest V-575 concession, testing an average 4,000 to 5,000 b/d of 26-27-gravity crude from the lower Miocene, just below 11,000 ft.

The company completed its No. 1 Marlago early this year, and is now stepping out along the north boundary of the lease. Crude is shipped from Shell's San Lorenzo terminal.

Shell also has completed ten wells on its Northwest V-574 concession, and is now laying a 20-in. pipeline 12 mi. to Bachaquero.

The company's rapidly rising production from lake concessions—both old and new—will soon reverse Shell's traditional role as a predominantly onshore producer. The lake now contributes around 310,000 b/d to Shell's 736,000 b/d total.

Nearby, on Central V-574, Sun is planning no further drilling at present. Its No. 2 Timoteo wildcat, drilled a year ago, had some oil shows but was never tested thoroughly.

Mideast Oil For Red China?

BEIRUT—Communist China may become a buyer of Middle East oil before long, according to highly placed Western businessmen in the Middle East.

The Chinese have already shown an interest in the Iraq government's 12½% share in kind of Iraq Petroleum Co. oil.

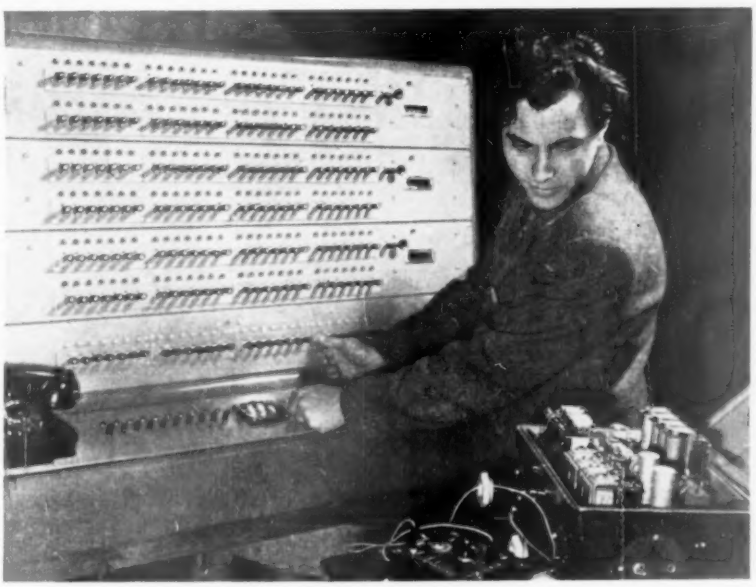
Western commercial circles say the Communist Chinese are already building up "commercial good will" in the Arab countries and Iran, presumably for the day they enter the market for Middle East oil.

The new regime in Iraq is said to be ready to sell its royalty crude to interested takers in the Communist bloc, even if it means making barter deals.

Recently the regime told IPC it wants a reduction in the six months' notice required for the government to exercise its option to take its royalty in kind.

Red China reportedly imports 90% of its oil from the Soviet Union, and there are reasons to believe it does not want to become too dependent on Soviet oil (PW—Dec.5 '58,p14).

This may be the reason that the Red Chinese are underselling even their own Communist allies in Middle East markets. In recent months, Red Chinese offered and sold chemicals to Arab countries at prices up to 35% below world market prices. In Iran, they reportedly sold textile machinery 70% below world prices.



Soviets Try Remote Well Control

The Russians are trying "telemechanized" production control of up to 200 wells from this experimental control board, which has a 9-mi. radius of operation. According to the information officially released, the unit uses transistors and has an automatic signal system for indicating problems on well equipment.

What's New / AROUND THE WORLD

JAPAN—The Japanese-owned Arabian Oil Co. was assured of some government aid last week to help finance its Neutral Zone offshore oil venture when drilling starts next year (PW—Nov.21'58,p35).

The company—which reportedly turned down an $80-million participation deal offered by a U.S. oil company earlier this year—is seeking $9.8-million of the $12.6-million it expects to spend next year.

The government agreed to a loan within the limits permitted by Japan's Export-Import Bank. It will also recommend that private banks participate in loans. Any government loan will have to be matched by the company's industrial backers and private banks, and banking sources believe this will be difficult.

•

FRANCE—Supplementary decrees to the new Sahara oil law were adopted by the DeGaulle Cabinet last week.

One of the major points specifies that the government decree awarding an exclusive "H" exploration permit may set a time limit for different stages of exploration, and may set minimum investments to be made.

Another point specifies that the government must be notified of any projected change in control of exploration permits and transport authorizations.

In addition, all data on exploration and development supplied to the government—except seismic data—may be made public immediately or communicated to third parties.

•

NIGERIA—Shell-BP reports that appraisal drilling has shown its 3,000 b/d Oloibiri field to be smaller than anticipated, and that drilling will be stopped when well No. 16 is completed.

The company also says "unexpected production problems" occurred. (Unofficial sources believe the wells are waxing up, and that some gas and water has been struck.) The rig will be moved to Bonny, 20 mi. southeast of Port Harcourt.

The field will continue at maximum output rate "consistent with good oilfield practice," the company says.

•

NORWAY—Bechtel Corp. will build all processing units and pipe installations at Esso's proposed 40,000 b/d refinery on the west side of the Oslo Fjord, at Slagen, in Vestford County.

Work on the unit, which is slated for completion by 1960, is to be carried out in conjunction with Sverdrup & Parcel, Inc., a U.S. consulting firm. Size of the contract was not disclosed.

•

VENEZUELA—Phillips Petroleum's new low-gravity oil pool in the Temblador area of southern Monagas has been proved to cover the entire 25,000-acre Block 9 concession, held by Phillips with seven other companies (PW—Oct.3'58,p73).

Phillips announced that each of six wildcats on the new concession in eastern Venezuela proved productive in Oficina sands between 3,200 ft. and 4,500 ft. Net pay thickness aggregates about 350 ft. in each, with potentials up to 1,200 b/d.

•

SAHARA—A British Petroleum Co. affiliate and three French companies already exploring here have asked for new oil rights near the Hassi Messaoud oil field.

BP's Soc. des Petroles de Valence, Coparex, Francarep, and Safrep have requested five tracts ranging from 88 to 695 sq. mi. in the Oasis Dept.

•

CUBA—Indiana Standard is pulling out of Cuba after drilling five dusters and 12 strat tests since September, 1955.

Soind's Cuban subsidiary, Cuban Stanolind Oil Co., has been released from its farmout agreement with Cuban Venezuelan Oil Voting Trust and Trans-Cuba Oil Co. on payment of a penalty.

The company has spent about $6-million under its agreement, which called for a total expenditure of $14¾-million to earn half-interest in some 14-million acres.

•

VENEZUELA—Automatic programming equipment designed to handle 100,000 b/d of oil from 40 wells will be installed in Lake Maracaibo for Sun Oil Co. by Texas Instruments Inc. by mid-1959. The $100,000 contract for the equipment was awarded by J. Ray McDermott Corp., the drilling contractor.

The all-electric control system, planned for completely unattended operation, will be mounted on a triple-decked platform which will be barged to Venezuela.

Nehru Urges Help in Finding Oil

NEW DELHI—India's Premier Nehru opened a petroleum symposium for Asia and the Far East here last week with a plea that underdeveloped countries be helped to develop their own oil resources.

Nehru said that oil development in the past has not always been in the interests of the countries where oil was found. But, he added, there is now a trend in the opposite direction, and many of these countries are starting to develop their oil resources with the help of friendly Western nations.

The symposium, which will run until Dec. 16, is designed to stimulate interest in the development of oil resources in Asia and the Far East.

Oil delegations from Western countries and the Soviet Union and Rumania joined those of 20 Asian nations to listen to the more than 100 papers being presented.

The papers covered many topics, from the petroleum industry in the area from Iran to Japan, to the oil potential of the region.

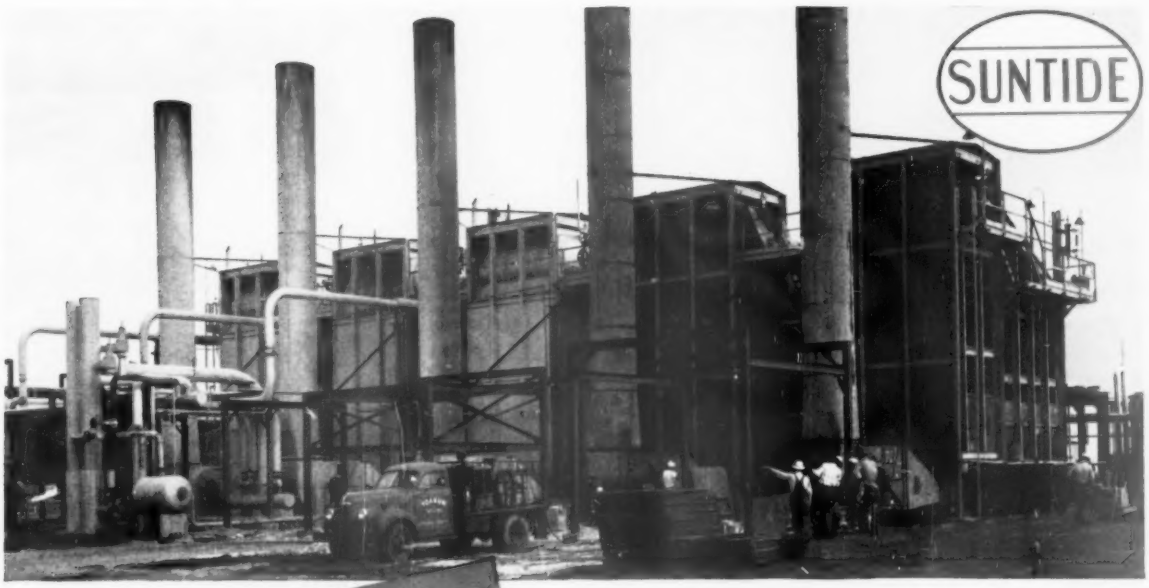
The symposium, which opened Dec. 3, was organized by the UN's Economic Commission for Asia and the Far East.

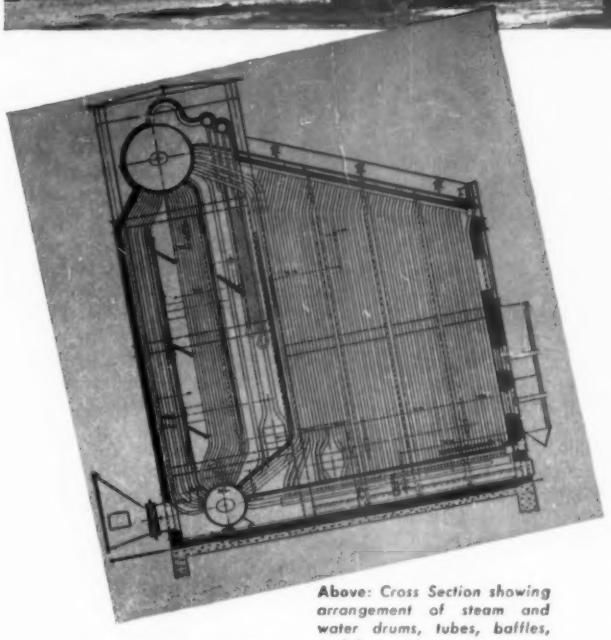
India's second speaker at the conference assured foreign oil companies that India had no intention of nationalizing holdings.

But Minister of Mines K. D. Malaviya added that the old policy of letting private companies develop monopolies in oil—or other industries—could not be continued.

Vogt STEAM GENERATORS

at SUNTIDE REFINING COMPANY
Viola, Texas





Above: Cross Section showing arrangement of steam and water drums, tubes, baffles, and furnace.

EFFICIENCY AND ECONOMY PROVED BY FIRST 3 UNITS . . . 2 MORE ADDED!

Principle Data Each Unit

- 85,000 pounds steam per hour capacity, designed for 500 lbs. S.W.P. and 625° F. total temperature.
- Water cooled furnace.
- Burners for Gas and Oil fuel.

Vogt offers a complete line of custom built and package type steam generators. Available in bent tube and straight tube designs for solid, liquid, or gaseous fuels burned singly or in combination.

Write for bulletins. Dept. 24A-BPW

OTHER VOGT PRODUCTS

Drop Forged Steel Valves, Fittings and Flanges—
Petroleum Refinery and Chemical Plant Equipment
Heat Exchangers
Ice Making and Refrigerating Equipment

HENRY VOGT MACHINE CO.

Box 1918, Louisville 1, Kentucky

SALES OFFICES: New York, Chicago, Cleveland, Dallas, Philadelphia, St. Louis, Charleston, W. Va., Cincinnati

DEPT/Marketing

Will Oil Join the 'One Card Trend'?

So-called "universal" credit card systems can't be truly universal without oil. But oil companies feel the overall plans have too many drawbacks at present.

Most oil companies say they probably will not participate in so-called "universal" credit card systems—at least, not now.

At the moment, they feel, there are too many disadvantages to oil in universal credit card programs.

Two large credit card companies, American Express Co. and Diners' Club, are currently trying to establish all-inclusive credit card programs.

Presumably, no credit card program could be universal without including the tremendous oil industry credit business, which runs about $300-million annually. There has been some discussion between the universal card companies and oil companies, but no deals have been made.

Many oil companies, stuck with the competitive necessity of a credit program, would welcome outside help. But the cost figure would have to be less than the oil industry's present tab.

Most suppliers carry the entire cost of credit card programs themselves. (One assesses its dealers for part of the cost.) One oil company credit man roughly estimates his company's cost at between 1% and 6% of credit sales. He adds, "If one of the credit companies could offer to take over this company's program at a figure close to or less than our present one, the company might be interested."

But at the moment, "American Express charges from 2% to 10% of accounts receivable, varying with the particular field involved. Diners' Club charges around 7%.

One East Coast marketer thinks an outside credit company would have to come down to 3% before the proposition would be attractive.

Present universal card plans—unlike oil credit systems—charge dealers a percentage of credit sales. Also, customers pay for their cards.

Dealers are used to extending credit to their customers without cost either to the customers or to themselves. Only The Texas Co. charges its dealers for the use of its credit program. Even though it is only a nominal fee (0.5% of accounts receivable, and a maximum of $3 a month), no other company has introduced a similar program.

However, most companies that have imprinters at service stations charge their dealers an annual rent for them.

If a dealer margin of 4.9¢ per gal. were reduced by, say, 1.7¢ per gal. (5% on 34¢-a-gal. gasoline) to pay for credit fees, few dealers could afford to handle credit sales. This cost would be especially damaging to low-volume outlets and to dealers caught in price wars.

The oil companies, with 30 years' credit experience, aren't convinced that the credit card companies could handle the high-volume, low-unit amounts involved in petroleum credit.

Credit companies are used to fewer and higher-ticket sales than the oil industry. Oil has millions of credit cards holders, and the average sale runs under $5.

Reimbursing dealers for credit sales might be a problem, too. Credit companies might take up to 160 days to pay dealers back. For most dealers, it's hard enough to wait the 30 to 60 days suppliers need for the necessary accounting.

The credit companies say their experience enables them to handle this kind of business. But the oil industry wants proof.

Some oil companies are worrying about the loss of brand loyalty if they were to subscribe to a universal credit system.

One East Coast marketer feels that, "The only economic justification for an oil company credit card program is brand loyalty."

But another marketer disagrees: "Credit cards, like trading stamps, may have had some affect in the beginning," he says. "But now that everybody has them, it's doubtful."

Generally, oil men are not convinced that brand loyalty has the strength it once did. But no company likes the idea of losing its identity on a universal card.

Another disadvantage to oil companies is that the universal systems deal only with a limited economic group.

Diners' looks for customers with incomes above $5,000; Amexco prefers $7,500 and above.

"The petroleum industry appeals to more than the white-collar person that Diners' and Amexco deal with," says one oil credit man. "Tie-ins with these programs would eliminate a great percentage of the oil industry's credit customers."

Oil credit men are waiting to see how the American consumer reacts to the universal credit card. But many think an eventual tie-in is inevitable.

One oil man told PETROLEUM WEEK: "Some oil company is bound to tie in sooner or later. When that happens, competition will force it industry-wide. And heaven help us if it does. It's hard enough already to figure where to draw the line in converting profitable cash business into credit business."

Meanwhile, oil companies are constantly improving their own credit programs, which bring in anywhere from 8% to 30% of company sales.

Most of the oil companies manage to keep their credit losses down to 0.4% to 0.5%. A few say their loss figures are even less than that. Most credit men think this loss average is good, considering that credit sales have been growing at the rate of 20% to 25% annually.

Credit people do not agree on the value of a permanent credit card. Some feel it makes control harder to maintain.

Gulf Oil Corp. has had a permanent card for some time, and finds that its losses are only slightly higher than the industry average. Phillips Petroleum Co. is in the process of converting to a nonexpiring card. The company says its reason is simply to cut the operational costs of changing cards so often.

But many companies still feel they can hold the reins on credit more tightly with a nonpermanent card. Socony Mobil Oil Co. recently put a two-year credit card into effect. All accounts expire at the same time, and all are then examined to determine whether new cards should be issued.

Tidewater Oil Co. and Esso Standard Oil Co. both have two card systems. Tidewater's first sixth-month card is replaced by a "good until revoked" card if the account proves good. Esso's quarterly card converts to an annual card if the account is considered a good risk after investigation.

Plastic credit cards and imprinters

The JANUARY 23rd issue of PETROLEUM WEEK

will provide oilmen everywhere
with a **detailed preview** *of both the*

14TH INTERNATIONAL PETROLEUM EXPOSITION

in Tulsa, May 14-23

and the

5th WORLD PETROLEUM CONGRESS

in New York, May 30-June 5

– the biggest events of oil's 100th anniversary year –

THE SPECIAL REPORT WILL

- give oilmen, both in the U. S. and abroad, a preview of what to expect at these world-wide industry meetings
- help them make travel, lodging and other plans
- provide the information they need to get the most out of their attendance with such features as: Lists of exhibitor companies...

... News of new equipment to be shown at both shows.... Show maps and guides.... Breakdowns of expected attendance by industry segment and job classifications.... Tourist guides with maps and pictures for both New York and Tulsa.... Entertainment suggestions.... Information on special oil industry sight-seeing tours.... Transportation and housing details.

- **TAKE YOUR PRE-SHOW PROMOTION** to oilmen the world over. Petroleum Week's entire paid circulation, the largest in the oil industry.

Advertising Closing Date: January 2, 1959

PETROLEUM WEEK

Oil's Most Readable Magazine

A McGRAW-HILL PUBLICATION, 330 W. 42nd ST., NEW YORK 36, N.Y.

Now! Market a superior motor oil with new "60" Series lube oil additives

Oronite® "60" Series additives are actually a new approach to compounded motor oils. They were specially designed for today's high-powered automobiles to provide better engine performance under "start and stop" driving conditions.

New "60" Series additives incorporate an ashless detergent component that virtually eliminates oil clogging, reduces cylinder and ring wear to a very minimum. The result is a marked improvement in engine life and service.

Get the complete story on "60" Series additives. Contact the Oronite office nearest you, or write for technical bulletin giving complete information.

ORONITE CHEMICAL COMPANY
A CALIFORNIA CHEMICAL COMPANY SUBSIDIARY
EXECUTIVE OFFICES
200 Bush Street, San Francisco 20, California
SALES OFFICES
New York, Boston, Wilmington, Chicago, Cincinnati, Cleveland, Houston, Tulsa, Los Angeles, San Francisco, Seattle
Foreign Affiliate:
California Chemical International, Inc., San Francisco, Geneva, Panama 4886

are keeping steady company in most of the industry's credit programs, along with other improvements.

Imprinters eliminate the agony billing offices used to go through with dealers' hand-written invoices. And the scene gets brighter all the time. Addressograph-Multigraph Corp. will introduce an imprinter next year that mechanically records the amount of sale after the dealer has imprinted the customer's name on the invoice.

Generally, oil men agree that centralized accounting is the most efficient and cheapest way of handling billing volume.

Standard Oil Co. (Ind.) has one company-wide billing office, in Chicago. Texaco is working toward reducing its accounting centers to four. Tidewater now has three division billing centers, located in Philadelphia, New York, and Los Angeles.

Some oil companies actively solicit new credit customers. But most of the bigger companies wait until new customers come to them.

Texaco, for instance, with 3-million credit cards, frankly admits it is not interested in soliciting new business.

Companies that do solicit new business usually do it on a local level, although there have been some national ad campaigns. By and large, the companies are convinced that the personal touch is the most effective.

Many companies have successfully used employee assistance programs.

Some oil men worry about greater loss risk after solicitation. But others feel that if credit investigations have been good, there is no reason why loss figures should go up. One Midwest marketer noted that campaigns seem to increase the number of inactive accounts.

Many oil companies would like to find a way to charge their customers for credit. "If a fellow wants to use our money, let him pay for it like a bank," says one oil credit man.

A Midwest marketer, however, disagrees with the idea of a fee system. "After all," he says, "we're not in the credit business."

But quite a few oil men think some sort of charge to customers is inevitable. One East Coast marketer reportedly has a fee system all worked out. But it admits that the problem is how to introduce it. As one credit man puts it, "It would have to be an industry move. And who would be the leader?"

What's New / IN MARKETING

Esso Research & Engineering Co. has developed a "snow-melter" that can "gobble up" a ton of snow with only 2 gal. of oil. For marketers, it provides a new market for fuel oil.

Esso says that its machine is the first commercially successful machine of its type. Using a principle known as "submerged combustion," the machine melts snow as fast as it accumulates, and the water flows into nearby sewers.

The machine is especially suitable for handling snow problems at large parking lots, shopping centers, airports, and other terminals. Thermal Research & Engineering Co., of Conshohocken, Pa., has been licensed to manufacture and market the equipment.

In tests at a 100-car parking lot, an 8-in. snowfall was disposed of in four hours. The same problem formerly required from ten hours to several days to shovel snow and haul it away.

The total cost of this type of snow removal is about 25¢ per car-space during an 8-in. snowfall—or about one-third the cost of trucking. The machine takes less than half the space a car takes. The test installation cost $7,000, but future models are expected to be much cheaper.

•

Gasoline octane ratings continue their slow but steady climb, with both premium and regular grades rated 0.1 numbers higher in November than in October. The latest Ethyl Corp. survey showed national weighted averages at 98.8 for premium and 91.5 for regular.

•

Tire dealers will exchange merchandising ideas at the fifth annual management program sponsored by the University of Akron (Ohio), to be held Feb. 2-7. Among the subjects on the program: building a hard-hitting organization; what to do about trends toward shopping centers, mass merchandising, express highways, changing income patterns; how to create better human relations with employees; financial and accounting problems; and creative merchandising.

Oil Men Call us "Bankers"

but . . . .

BANKERS CALL US "OIL MEN"

COMPLETE ENGINEERING AND OIL DEPARTMENT

W. L. KENDALL, Senior Vice Pres. — W. L. MORRIS, Engineer

M. R. BILLINGTON, Ass't Vice Pres. — A. D. McCALL, Engineer

IN OIL MATTERS — *IT PAYS TO*

Think 1st *of Tulsa*

FIRST NATIONAL BANK & TRUST CO.

SINCE 1895

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

INTEGRITY TO FINISH THE JOB . . .

A Quality of Houston Contracting Pipeliners

The men of Houston Contracting Company feel that a pipeline is not finished until the right-of-way has been completely cleaned up. Both pipeline owner and contractor benefit from this spirit of community welfare for better built pipelines by Houston Contracting.

Houston CONTRACTING COMPANY
GENERAL CONTRACTORS
Lawrence H. Foster • B. P. Gregory • Geo. A. Peterkin

OIL • GAS
GASOLINE
WATER PIPELINES

3007 BUFFALO SPEEDWAY
HOUSTON 6, TEXAS

NOISE and PULSATION Can Be Stopped Scientifically!

NOISES from intake and discharge piping of air, steam and gas systems

and

PULSATION and VIBRATION caused by surge in compressor, blower and pressure reduction systems

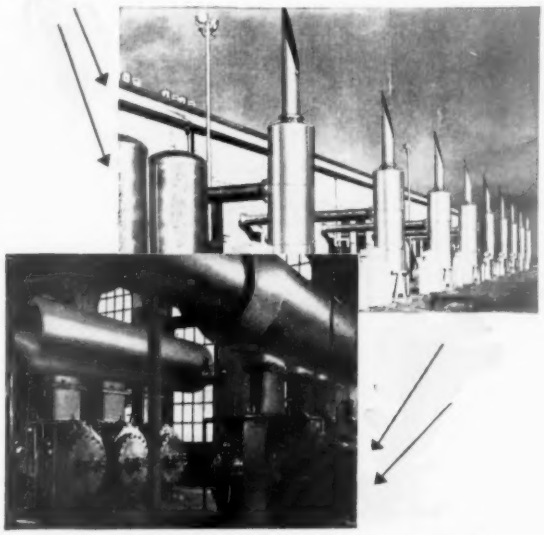
are effectively eliminated by BURGESS-MANNING SNUBBERS

First, the B/M Snubbing Principle is scientifically correct and thoroughly proved in every branch of industry, and

Secondly, every Burgess-Manning Snubber is engineered to the specific application.

Burgess-Manning Snubbers attack noise and pulsation at the source. The pulse and slug of engine or compressor discharge is dissipated before it can be transmitted to atmosphere or other parts of the system. Elimination of the noise and pulsation problem will be money in your pocket through better equipment efficiency, improved production, reduced maintenance, elimination of operating hazards that result in costly errors, and improved neighbor and labor relations.

We invite you to present your problems for recommendations.



Write for free copies of case histories of representative installations and see proof of results.

BURGESS-MANNING COMPANY

Sound Engineering

9219 Sovereign Row, Dallas 35, Texas
Libertyville, Illinois

DEPT/Service & Equipment Companies

JOHN STAUDT, executive vice-president and a director of the Dowell Division of Dow Chemical Co., is president of the newly organized Dowell Division of Dow Chemical International Ltd., S.A. Other officers of the new division are: **A. C. Polk** and **L. B. Swan,** vice-presidents; **Tromer R. Smith,** general manager; **Neil Miller,** treasurer; and **J. H. Hanes,** secretary. Staudt, Polk, Miller, and Hanes are with Dowell in Tulsa; Swan and Smith will be located in the new Dowell foreign headquarters, in Houston. Directors of the division are the officers and **A. P. Beutel** and **Oliver E. Beutel.** A. P. Beutel, president of Dowell and a director of Dow Chemical, is located at Freeport, Tex., where he is also general manager of Dow's Texas division. Oliver Beutel is located at the Midland (Mich.) headquarters of Dow Chemical. The new division's well servicing equipment is being assembled in Dowell's Tulsa shops for shipment to Argentina, where it will provide oil-well cementing and pumping services.

John Staudt

L. H. Nordenson

LARS H. NORDENSON has joined Dresser Industries, Inc., in the newly created position of vice-president in charge of foreign operations, with headquarters in Dallas. Nordenson has been assistant to the president of Liljeholmens Stearinfabriks AB, in Stockholm; sales manager in the London and Paris offices of M. W. Kellogg Co.; and an engineering executive with American Cyanamid Co., New York, and Union Oil Co. of California, Los Angeles.

GEORGE GOSS YEAGER is the new technical sales representative of oil field sales for the petrochemical department of Continental Oil Co. Yeager will be in charge of a newly created district, centering around Lubbock and Borger, Tex., and extending as far West as the Four Corners area of New Mexico and Colorado. Yeager joined Conoco in August of this year.

JEROME W. KOMES has been elected senior vice-president of Bechtel Corp., San Francisco, and to the executive vice-presidency and other appropriate positions in the company's international subsidiaries and affiliates. Komes was elected vice-president of the company in 1951, and was named to the board in 1955. **S. D. Bechtel, Jr.,** executive vice-president of Bechtel, has been elected to the chief offices of the subsidiaries and affiliated companies. He will also continue as principal officer of Bechtel's pipeline division and as chairman of Canadian Bechtel, Ltd., Toronto.

CARSON R. SCHALL has transferred to Maracaibo, Venezuela, as foreign sales representative for Reynolds Metals Co. He was most recently chemical and petroleum market representative for the company in Dallas. The Reynolds Maracaibo office offers technical assistance in the applications of aluminum in Venezuela.

B. D. CASS and **MURPHY HORTON** are sales engineers for Beaird International, Inc., Calgary, newly created subsidiary of J. B. Beaird Co., Shreveport, La. Cass was formerly located at Beaird's compressor sales office in Tulsa, and Horton was chief inspector at the company's Shreveport plant. Both men will work with **Charles W. Haynes,** vice-president of the new subsidiary.

ROBERT SPELLMAN was named vice-president in charge of West Texas, and a director, of Franklin Supply Co., Denver. Spellman, formerly district manager of the Midland (Tex.) area, will be responsible for the Dallas and Ft. Worth areas, and will continue to have offices in Midland. **Clarence Sublett,** vice-president in charge of the Midwest division, in Chicago, and **William Carroll,** vice-president of Franklin's eastern seaboard and export division, in New York, have also been named directors.

RICHARD E. DRANE has joined the sales staff of Enardo Mfg. Co., Tulsa, manufacturer of oilfield production, pipeline, vapor control, and tank equipment. Drane has just received his discharge as a lieutenant in the Army Corps of Engineers. Before entering the service, he was sales engineer for Black, Sivalls & Bryson, Inc., Kansas City, Mo.

HENRY E. WIEDITZ is the new sales representative for Universal Oil Products Co.'s antiozonant products, with offices in Des Plaines, Ill. Prior to his new appointment, Wieditz was involved in research on antiozonant applications.

H. E. Wieditz

H. B. Marioneaux

HARRY B. MARIONEAUX has been elected president and general manager of The Brewster Co., Shreveport (La.) manufacturer of oilfield equipment. **Bill Pickering** has become assistant to the president and sales manager, and **John L. Morgan** vice-president and director of sales. Marioneaux, with Brewster for 15 years, was most recently vice-president and general manager. Pickering, with the company for the last four years, was named manager of sales last spring. Morgan, formerly manager of equipment sales of Superior Iron Works & Supply Co., Shreveport, will also serve on Brewster's board.

JAMES M. KNOX has been elected president of Research-Cottrell, Inc., Bound Brook (N.J.) manufacturer of industrial gas cleaning equipment and specialist in industrial gas handling. Knox succeeds **Carl W. Hedberg,** who is retiring but continues as a director of Research-Cottrell and the parent Research Corp. Knox has been Research-Cottrell's executive vice-president since early this year.

ROBERT G. ALLEN will become president of Bucyrus-Erie Co., South Milwaukee, Wis., on Dec. 16. He succeeds **William L. Litle,** who continues as chairman and senior officer. Allen joined the company in 1957 as vice-president, and later that year became executive vice-president. **Victor C. Studley** will become vice-president in charge of finance, succeeding **Frederick C. Weiblen,** who retires on Dec. 15. Studley will continue as the company's treasurer. **John R. Warner** was named vice-president in charge of purchasing, effective Dec. 16.

Oil Industry Advertising

If you manufacture equipment or component items for the petroleum and petro-chemical industries, let oil country experts prepare your sales promotion material *in the oil patch* — where your products are used.

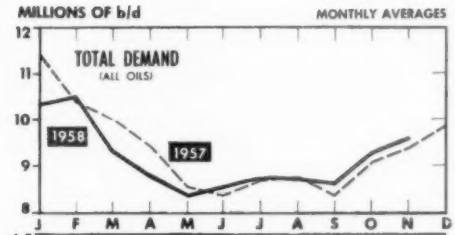
Dan Goodrich, Advertising

731 Meadows Oil Center • Dallas

OIL COUNTRY

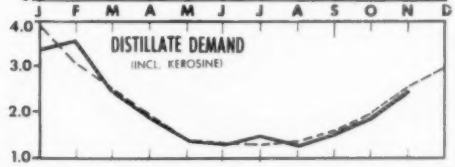
PETROLEUM WEEK'S

Fingertip Figures



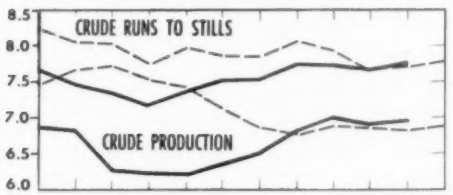
TOTAL DEMAND

Latest 4-week average	9.750
Year ago	9.569



DISTILLATE DEMAND

Latest 4-week average	2.650
Year ago	2.596

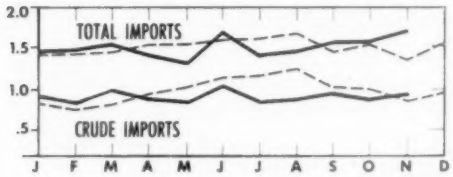


RUNS TO STILLS

Latest week	7.666
Previous week	7.785
Year ago	7.807

CRUDE PRODUCTION

Latest week	7.067
Previous week	6.983
Year ago	6.850

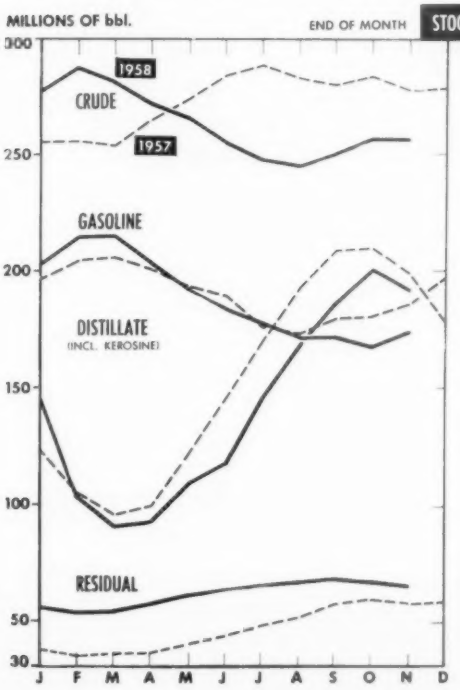


TOTAL IMPORTS

Latest week	1.726
Previous week	1.500
Year ago	1.563

CRUDE IMPORTS

Latest week	1.020
Previous week	.746
Year ago	1.081



CRUDE STOCKS

Week-ended 11-29	258.3
Previous week	256.3
Year ago	279.7

GASOLINE

Latest week	174.3
Previous week	173.6
Year ago	188.1

DISTILLATES

Latest week	186.8
Previous week	193.4
Year ago	194.4

RESIDUAL

Latest week	65.1
Previous week	66.2
Year ago	58.8

The government's indecision on an imports control program poses a troublesome supply problem.

At midweek there was no announcement on the future of a program to restrict imports past the Dec. 31 expiration of the present voluntary plan (page 6).

It could lead to an oversupply, an undersupply, or an approximate balance of supply and demand.

Barring a last minute decision, the Texas Railroad Commission will be up in the air as to next month's market demand for Texas crude, at its statewide hearing Tuesday.

The total volume of imports, which averaged 1,727,000 b/d during the most recent four-week period, has an important bearing on demand for domestic crude.

If imports are to be restricted beyond Dec. 31—voluntarily or otherwise—to roughly the level now permitted (which had been the expectation until this week), then the commission knows what the approximate market demand will be.

Purchasers' nominations already have given a fair indication of expected demand.

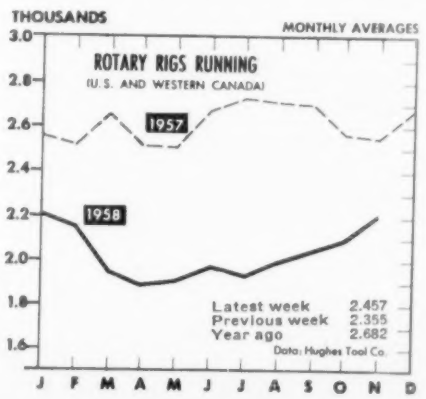
Any unexpected increase in imports obviously would lead to the danger of an oversupply in January.

Purchasers' nominations for January are at the December level, which asked for a lower producing schedule than the commission granted.

So any unusual increase in supply would boost oil availability above the level that the major buyers now believe will be needed to fill January demand.

Importers themselves are in a quandary. In many cases, their January imports are already enroute.

Many companies can't change their plans—geared to their own anticipated requirements—on short notice.



The Market Trend

Chicago: Price Hikes Have Uphill Fight

One of the hard facts in today's oil picture: Prices slide down easier than they move up. This is the experience of Midwest sellers after almost a year of declines.

Advances of 0.25¢ last week in Chicago gasoline and heavy fuel still leave prices for these products well below a year ago. And the motor gasoline increase is by no means certain to hold, even though the new price is 1.25¢ below last December's level. No. 6 is down by 0.70¢. Also, although No. 2 fuel advanced 0.25¢ in early December, and is now even with a year ago, it's still 0.85¢ below the December, 1956, high point.

The Chicago price advances may be overdue, but jobbers are fighting the increases, at least in gasoline and distillates. The heavy fuel advance seems on firmer ground, but ample stocks of natural gas this season work to retard impressive gains in No. 6 prices. On gasoline, shading to hold accounts threatens to wipe out the increase. Even if it sticks, Chicago sellers concede that there is virtually no hope for further increases before spring.

In hindsight, Chicago sellers have learned that price cuts to gain temporary market advantages have a way of hanging on. It's true that Chicago marketers succeeded in driving out the Gulf Coast and inland Texas refiners who would have invaded their area. The trouble is that price advances now might invite them back.

A Utility Considers Oil:

Central Hudson Gas & Electric Co. is interested in bids for a partial supply of oil to its Danskammer steam plant, located near Poughkeepsie, on the Hudson River.

Up to now, the Danskammer plant has run entirely on coal. The company is feeling out the possibility of buying about 2-million bbl. of bunker oil on long-term contract.

Egyptian Crude To Yugoslavia:

About 200,000 tons of Belayim (Egyptian) crude oil have been sold for movement to Yugoslavia, shipments to be spaced out over a year.

No price details, but it's likely that the material went at a discount. Earlier this year, this high-salt crude was offered in western markets, but the response was not enthusiastic.

Persian Gulf Fuel Oil:

A cargo of bunker "C" fuel was sold at $1.09 a bbl. f.o.b. the Persian Gulf last week. The price probably shook up many sellers in the area. But it's about what it takes to reach the New York harbor market, at current tanker rates.

Cheaper Fuels:

Athens-Piraeus Electricity Co. came in the market for only 60,000 tons of fuel oil this year, compared with 300,000 tons in the past. The reason: The company is using locally-produced lignite.

Idle Fleet Reduced:

Individual salvation often is collective debacle. Hoping for good winter ocean rates, vessel owners since summer have pulled 99 tankers out of lay-up. Now, too many ships are looking for too few cargoes.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of December 8

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem. . . . 11.75-12.75
- Gasoline, 92 oct reg. . . . 10.5-11.5
- **Kerosine . . . . 9.375-9.875†**
- Heating oil, No. 2. . . . 8.875-9
- Gas oil, 48-52 d.i. . . . 9.125-9.5
- Fuel oil, bunker "C". . . . $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130. . . . 16
- Gasoline, 93 oct research prem. . . . 10.75
- Gasoline, 87 oct research reg. . . . 9.875
- Gasoline, 79 oct research. . . . 9.125
- Gasoline, 70-72 oct motor method. . . . 9
- Kerosine 9.375-9.625
- Heating oil, No. 2. . . . 8.875
- Gas oil, 48-52 d.i. . . . 9.125
- Fuel oil, bunker "C". . . . $2.00

New York Harbor, barges
- Kerosine 10.7
- Heating oil, No. 2. . . . 10.2
- Fuel oil, No. 6. . . . $2.37-2.45

Okla-Group 3, northern shpt., bulk
- Gasoline, 89 oct reg. . . . 11.625-12.375
- Kerosine 10-10.5
- **Heating oil, No. 2. . . . 8.5↓-9.5**
- **Fuel oil, No. 6. . . . $1.60↑-1.70↑**

Chicago, bulk
- **Gasoline, 91 oct reg. . . . 11.5↑**
- **Heating oil, No. 2. . . . 9.75↑-11.35**
- Fuel oil, No. 6 high sulfur. . . . 7.15-7.25

Los Angeles, rack
- Gasoline, 88 oct reg. . . . 11.75-12.6
- Diesel fuel, PS 200. . . . 10-11.25
- Light fuel, PS 300. . . . $2.80
- Heavy fuel, PS 400. . . . $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3. . . . 4.5
- FOB Breckenridge, Tex. . . . 4

LP-Gas
- Propane, Oklahoma (Group 3). . . . 5

Pennsylvania Lubes
- Bright stock, 25 p.t. . . . 22
- 200 vis. neutral, 25 p.t. . . . 21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. . . . 23-24
- Neutral, solvent, 200-210 vis. . . . 19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. . . . 24
- Neutral, solvent, 200 vis. . . . 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130. . . . 17.25
- Gasoline, 79 oct research. . . . 10.375
- Kerosine 10.375
- Gas oil, 48 d. i. minimum. . . . 10.25

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9. . . . $2.77-3.07
- North Dakota, 36.0-36.9. . . . 2.62-3.07
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9. . . . 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9. . . . 2.92-3.22
  - West Texas, sweet, 36.0-36.9. . . . 3.00-3.07
  - West Texas, N. M., inter., 36.0-36.9. . . . 3.00
  - West Texas, N. M., sour, 32.0-32.9. . . . 2.86
  - East Texas, flat. . . . 3.25
  - Mirando, 28.0-28.9. . . . 3.31
- Illinois Basin, flat. . . . 3.00
- Pennsylvania Grade, Bradford dist., flat. . . . 3.90
- California, Signal Hill, 21.0-21.9. . . . 2.50†
- North Louisiana-Arkansas, 36.0-36.9. . . . 2.77-3.02
- Wyoming, sweet, 36.0-36.9. . . . 2.90-3.00
- Wyoming, sour, 32.0-32.9. . . . 2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.). . . . $2.61
- Leduc-Woodbend (Alta.). . . . 2.67
- Redwater (Alta.). . . . 2.56
- Daly (Man.). . . . 2.39
- Smiley (Sask.). . . . 2.33

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido. . . . $3.66
- San Joaquin, 41.0-41.9, Puerto la Cruz. . . . 3.25
- Oficina, 35.0-35.9, Puerto la Cruz. . . . 3.05
- Tia Juana, Medium, 26.0-26.9, Amuay. . . . 2.55
- Bachaquero, flat, Las Piedras. . . . 1.78-1.93
- Tarra, 38.0-38.9, San Lorenzo. . . . 3.08
- Lagunillas Heavy, flat, Cardon. . . . 2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura. . . . $2.08
- Safaniya, 27.0-27.9, Ras Tanura. . . . 1.65
- Iran, 34.0-34.9, Bandar Mashur. . . . 2.04
- Iran, 34.0-34.9, Abadan. . . . 1.99
- Iraq, 35.0-35.9, Fao. . . . 1.98
- Kuwait, 31.0-31.9, Mina-al-Ahmadi. . . . 1.85
- Qatar, 41.0-41.9, Umm Said. . . . 2.23
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud. . . . 1.61
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud. . . . 1.43

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon. . . . $2.49
- Iraqi, 36.0-36.9, Tripoli, Banias. . . . 2.49

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38. . . . $2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean. . . . (USMC flat) $2.85↑
- U.S. Gulf-New York, dirty. . . . (USMC—20%) $2.28
- NWI-USNH, dirty. . . . (USMC—55%) $1.22
- NWI-UK/Cont., dirty. . . . (Scale—42½%) 18/8*
- Persian Gulf-UK/Cont., dirty. . . . (Scale—57½%) 26/7*
- Persian Gulf-USNH, dirty. . . . (USMC—60%) $5.08

**Sterling.*

ADVERTISERS IN THIS ISSUE

Alten Foundry & Machine Works, Inc.	21
Brown & Root, Inc.	1
Bryton Chemical Co.	33
Burgess-Manning Industrial Silencer Div.	57
Cameron Iron Works, Inc.	4
Collins Radio Co.	27
Continental-Emsco Co.	34-35
Crose Mfg. Co., M. J.	46
Dowell	Cover 3
Dresser Industries, Inc.	24-25
Eastman Chem. Prods., Inc.	7
Ever-Tire Coupling Co., Inc.	2
First Nat'l. Bank in Dallas	Cover 2
First Nat'l. Bank & Trust Co. of Tulsa	57
Foxboro Co.	39
Grant Oil Tool Co.	30
Graver Tank & Mfg. Co., Inc.	47
Goodrich Advertising, Dan	58
Houston Contracting Co.	57
Kellogg Co., M. W.	Cover 4
LeTourneau, Inc., R. G.	29
Liberty Mfg. Co.	19
Mercantile National Bank	44
Oakite Prods., Inc.	38
Olin Mathieson Chem. Corp.	23
Oronite Chemical Co.	56
Penrod Drilling Co.	18
Petreco Div., Petrolite Corp.	15
Price Co., H. C.	13
Procon, Inc.	37
Reda Pump Co.	28
Republic Nat'l. Bank of Dallas	3
Republic Supply Co.	16
Standard-Vacuum Oil Co.	50
Sun Shipbuilding & Dry Dock Co.	42
Tex-Tube, Inc.	22
Vogt Machine Co., Henry	53
Warren Petroleum Corp.	63

Classified Advertising
F. J. Eberle, Business Mgr.

Employment Opportunities	63
Business Opportunities	63
Equipment Used or Surplus New For Sale	63

PETROLEUM WEEK REPRESENTATIVES

Atlanta 3 — Douglas C. Billian, 1301 Rhodes-Haverty Bldg., Jackson 3-6951

Boston 6 — Donald R. Thompson, 350 Park Square Bldg., Hubbard 2-7160

Chicago 11 — Edward A. Callahan Jr., 520 North Michigan Avenue, Mohawk 4-5800

Cleveland 15 — J. E. MacArthur, 1164 Illuminating Bldg., 55 Public Square, Superior 1-7000

Denver 2 — J. W. Patten, Mile High Center, 1740 Broadway, Alpine 5-2981

Houston 25 — D. O. Hanson, 724 Prudential Bldg., Jackson 6-1281

Los Angeles 17 — Peter S. Carberry, 1125 W. Sixth St., Huntley 2-5450

New York 36 — Donald R. Thompson, 500 Fifth Ave., Oxford 5-5959

Philadelphia 3 — W. A. Potter, 6 Penn Center Plaza, Rittenhouse 6-0670

San Francisco 4 — William C. Woolston, 68 Post Street, Douglas 2-4600

Tulsa 3 — J. A. Hartley, 909 Enterprise Bldg., 522 South Boston, Gibson 7-5594

England, London E. C. 4 — E. E. Schirmer, McGraw-Hill Co., Ltd., 95 Farrington St.

DEPT/Personals

T. B. HICKMAN has been named vice-president and manager of operations of Gulf Refining Co., in Houston. He succeeds **Walter Shannon,** who moved to Pittsburgh as Gulf's director of pipeline engineering. **Fred McIntosh,** formerly assistant chief dispatcher, succeeds Hickman as Gulf's manager of oil movements. **S. O. Tostengard,** formerly Gulf's part-interest executive, has been named coordinator of pipelines. He has been a director of the company since 1957.

J. D. McConnell

T. B. Hickman

J. D. McCONNELL, presently vice-president and director in charge of crude lines for Sinclair Pipe Line Co., has been appointed vice-president and director in charge of the new economics and planning department. The new department will begin operations on Jan. 1, and will be located at the company's headquarters in Independence, Kan. McConnell will be in charge of planning, economic analysis, and operating evaluation of projects in all phases of the company's pipeline operations. **J. A. Jackman,** executive assistant, has been named to assist McConnell. **Lewis B. Moon,** vice-president in charge of product lines, has been placed in charge of Sinclair's crude oil and refined products pipeline networks, each presently under the supervision of a vice-president. Moon will be assisted in the administration and supervision of the consolidated operations by **L. C. Foy** and **G. H. Giles,** general managers. Division managers responsible for field operations in the reorganization are: **J. E. Lewis,** Ft. Worth; **T. A. Myers** and **J. D. Maxey,** Independence, Kan.; **E. B. Jordan,** Marion, Ohio; and **C. R. Parish,** Casper, Wyo.

C. HAINES FINNELL has been appointed manager of retail marketing for Union Oil Co. of California, Los Angeles, and **Jerry Luboviski** succeeds him as Union's director of public relations and advertising. In his new position, Finnell will be in charge of retail sales activities in the company's principal marketing area of ten western states and Hawaii. Luboviski, most recently Union's manager of public affairs, has also served as manager of public relations for the Western Oil & Gas Assn.

WESLEY W. MOORE will take over the newly created post of drilling analyst of British-American Oil Producing Co. on Jan. 1. Moore, general superintendent of B-A's production department, will continue to be headquartered in Dallas. **Fred A. Norris,** superintendent of the central division in Oklahoma City, will succeed Moore as general superintendent. **Travis W. Moore** moved to Oklahoma City on Dec. 1, to replace Norris. Moore was formerly assistant to the general superintendent, in Dallas.

FRANKLIN C. PRICE has been appointed regional credit manager in Sun Oil Co.'s central sales region, with offices in Pittsburgh. Price, supervisor of the Philadelphia district credit office since 1952, succeeds **L. B. Morgan,** who is retiring. **Emmett E. Simpson** has become office manager of Sun's Exeter (Pa.) sales district. For the past few months, Simpson has been on special assignment for the marketing accounting department; before that, he was office manager of the Reading (Pa.) sales district.

JIM P. RYAN was named landman of the Rocky Mountain division of Kerr-McGee Oil Industries, Inc., in Denver. Ryan was formerly regional landman at Midland, Tex. **Curtis Reagan,** formerly landman for Kerr-Mc-Gee at New Orleans, succeeds Ryan. **Glen Hughes** transfers from Oklahoma City to replace Reagan in New Orleans.

PAUL W. McFARLAND is the new manager of Sun Oil Co.'s Latin American production division, with headquarters in Caracas. The division is currently carrying on exploration and production activities in Venezuela, Colombia, Guatemala, Cuba, and the Bahamas. McFarland replaces **Benton E. Warren,** who died on Nov. 10. **Lee C. Smith** replaces McFarland as exploration manager for the division; he has been chief geologist of the division since earlier this year.

P. W. McFarland

J. J. Browne

J. J. BROWNE will become Rocky Mountain division superintendent on Dec. 31, for General Petroleum Corp.'s production department, at Salt Lake City. Browne, now special assistant in the company's Los Angeles home office, succeeds the retiring **Aldon L. Hair. P. M. Barry,** assistant to the superintendent of the southern division, at Santa Fe Springs, will replace Browne in Los Angeles. At the same time, **W. G. Christensen,** petroleum engineer at Bakersfield, Calif., will become assistant to the manager of joint-venture operations, in Los Angeles.

WARREN C. WILSON is the new product manager for lube oil addi-

tives at Esso Standard Oil Co.'s New York headquarters. In his new position, Wilson succeeds **R. J. Kaul,** who is retiring. Wilson was formerly assistant to the manager of Esso's Bayway refinery in Linden, N.J.

CHARLES T. EASLEY is the resident manager of Delhi Australian Petroleum, Ltd., which is conducting an exploration and drilling program jointly with Santos, Ltd., in the Great Artesian Basin of Australia. Easley joined Delhi-Taylor Oil Corp., the Australian company's parent, in 1955, as district landman in Lafayette, La. He has been district exploration supervisor there since September. In his new position, Easley will be responsible for the administrative, exploration, and drilling operations of the company; and will act as liaison between the company and its Australian associates. **Horace G. Pullin** is the drilling superintendent of the Australian operation, and **A. R. Gibson** is the petroleum engineer.

C. T. Easley

J. F. Dyer

JAYE F. DYER has joined the staff of Apache Oil Corp., Tulsa, as division geologist in charge of new areas. He will deal primarily with researching new areas for exploration in the Rocky Mountains. Dyer was formerly exploration manager in the Rocky Mountain area for Anderson-Prichard Oil Corp.

MERRILL J. ANDERSON, formerly with Ethyl Corp.'s eastern region in New York, has been promoted to chief automotive engineer in the central region, in Chicago. Anderson will serve on the staff of Stuart Forbes, central region manager, and will be responsible for customer technical services in the automotive field. Before joining the sales department in the eastern region, Anderson held various positions in the research and development laboratories in Detroit.

J. Reid Jackman has joined Ethyl as a member of the refinery technology division, at the Detroit research laboratories. He was formerly associated with DX-Sunray Oil Co., in Duncan, Okla.

J. HUGO ARONSON, governor of Montana, became chairman of the Interstate Oil Compact Commission at its annual meeting in Kansas City, Mo. **Z. Arthur Nevins,** a member of the Kansas governor's office, is first vice-chairman, and **Wilson Laird,** a member of the North Dakota Geological Survey, is second vice-chairman.

WILLIAM J. KREPPS was promoted to exploration manager in Tennessee Gas Transmission Co.'s Wichita (Kan.) district. He was formerly district geologist in Oklahoma City. **E. S. Rouget,** formerly senior geologist in the Oklahoma City district, succeeds Krepps as district geologist.

C. R. ELDER, JR., general superintendent of Sohio Pipe Line Co., Cleveland, is now vice-president and a director of that company. Elder, with Sohio, since 1947, was superintendent of the Tri-State division before becoming general superintendent.

BERNARDO RIKLES was elected president of the Instituto Argentino Del Petroleo, at its recent meeting in Buenos Aires. Other newly elected officers of the institute are: **Altavino E. Catinari,** vice-president; **Jose F. Soler,** secretary; **Martin T. Aranguren,** assistant secretary; **Edgardo Rambelli,** treasurer; and **Emilio Begher,** assistant treasurer.

E. E. AINE is superintendent of the Los Angeles (Calif.) Works for The Texas Co.'s refining department. Aine, formerly assistant manager in Los Angeles, succeeds **W. J. Ryan,** who is retiring. **George Louis,** formerly supervisor of the crude still area in Los Angeles, succeeds Aine.

A. M. BLAKELY, Blakely Oil, Inc., Phoenix, Ariz., was elected a director of the Society of Independent Gasoline Marketers of America, at its recent meeting in Chicago. Two other newly elected directors are **Paul Deer,** Bonded Oil Co., Springfield, Ohio, and **J. O. Price, Jr.,** Imperial Florida Oil Co. Winter Park, Fla.

for QUALITY... QUANTITY... SERVICE

Whatever the GRADE and the VOLUME of

NATURAL GASOLINE

Just rely on WARREN'S versatile facilities to give you dependable deliveries ... WHERE and WHEN and the WAY you want them.

WARREN

PETROLEUM CORPORATION

TULSA, OKLAHOMA • Cable Addresses: STAVOLENE, WARREN

EXPORT TERMINALS: CORPUS CHRISTI, PORT ARTHUR, BAYTOWN, TEXAS CITY AND WARRENGAS (HOUSTON), TEXAS, SAN PEDRO, CALIF.

CLASSIFIED

DISPLAYED RATE

The advertising rate is $16.75 per inch for Equipment and Business Opportunity advertising appearing on other than a contract basis. Contract rates quoted on request.

Employment opportunities—$22.20 per inch, subject to Agency Commission.

UNDISPLAYED RATE

$1.80 a line. Minimum 3 lines. To figure advance payment count 5 average words as a line. (See† on Box Numbers.)

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

PROPOSALS, $1.80 cents a line on insertion.

INFORMATION

BOX NUMBERS count one additional line in undisplayed ads.

NEW ADVERTISEMENTS accepted 10 days prior to issue date.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.

NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

POSITION VACANT

Geologist/Geophysicist, youngish, with varied field experience in U.S. Oil and Mining Exploration reqd. for N.Y. hqters. worldwide geophysical concern. $6000/9000. P-9479, Petroleum Week.

POSITION WANTED

Exploration Geologist, 33, Married, family, Masters, desires relocation. 8 years experience, 5 rig supervision, well completions, workovers, 3 consulting. Prefer aggressive independent or investment group, advancement opportunity. Experienced all phases oil business. Excellent references. PW-9433: Petroleum Week.

BUSINESS OPPORTUNITY

Seeking connection to sell re-refined oil to large independent oil companies in Louisiana, Mississippi. BO-9476, Petroleum Week.

SALES EXECUTIVE

Established oil company wishes to employ individual who has had petroleum marketing experience at the executive level. Salary commensurate with experience and proven ability. Send background resume. All information confidential.

P-9451 PETROLEUM-WEEK CLASS. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

GRADALL M-2460

Self propelled Wagon Carrier. One man operation.

Features maneuverability, hydraulic retractable boom. Powered for steep grades. For use in maintenance—material handling —general excavation, loading and unloading work.

Like new—1956—Price $16,000

SERVICE SUPPLY CORPORATION

2002 Erie Ave. Phila. 32, Pa.
BAldwin 9-1950

SUB LEASE

Desirable Office Space
3,000 Sq. Ft. or More on One Floor
NATIONAL BANK OF TULSA
CONTACT H. E. CANADA
P. O. Box 2159
Dallas 21, Texas
Telephone RI—7-7011

Why Is It So Bad to Be So Big?

OIL MAY FIND ITSELF DISINTEGRATED by court order some day in the not too far distant future. That's not as rash a prediction as it may seem upon reading between the lines of the various antitrust suits filed by the Justice Dept., reports of investigations by federal agencies, and the many unfounded charges by government officials. In fact, it is not even necessary to read between the lines to find a basis for such a prediction.

The sum total of the many actions—both past and present—is that the industry is being characterized as Public Enemy No. 1. The continuity of the charges—regardless of proof—is in itself enough to convince many.

DIVORCEMENT OF OPERATING BRANCHES in the industry is the apparent goal. Pulling pipelines out of the scope of integrated company operations has been talked for some time. And a strong move in that direction appears to be taking shape in the Justice Dept. (PW—Dec.5'58,p70). Divorcing marketing from integrated operations is another apparent aim of the Justice Dept. Moves in that direction also have been made in Congress.

It's hard to pinpoint reasons for those actions, simply because the industry's attackers do not—or possibly cannot—cite good reasons for their actions.

The so-called "Mother Hubbard" case filed against the industry generally in 1940 was in reality a divorcement proceeding that fell flat. And the subsequent antitrust suit against seven West Coast majors, which grew out of the Mother Hubbard case, also has been a dud as far as divorcing marketing is concerned.

Federal District Judge James Carter, at San Diego, has already ruled out marketing divorcement, even before the West Coast case goes to trial.

In its most recent antitrust filing, involving Standard Oil Co. (N.J.), Esso Standard Oil Co., and Standard Oil Co. (Ky.), the Justice Dept. appears headed for another broadside attack on oil. For, in addition to specific complaints against those companies, it implies that there are marketing practices (not specified) by other companies (not identified) that are being investigated.

THERE ARE MORE NONINTEGRATED than integrated entities in the oil business. But the biggest companies happen to be integrated ones. So the attack boils down to one against success and size.

Presumably, the attackers believe the public interest would be better served if the industry consisted entirely of small units, greatly limited in their scope of operations.

An important announcement to the drilling industry--

Drilling Contractors have found they get up to 50% FASTER DRILLING, 25% LONGER BIT LIFE, SUBSTANTIAL DOLLAR SAVINGS with DOWELL'S new drilling agent--POLYDRIL!

A brand-new aid for the rapid settling of solids in clear water drilling is now available from Dowell. The product is Polydril*, an *easy-to-mix, low-cost,* water-soluble, organic polymer. Polydril helps you increase drilling rates and bit life, and lower water and mud costs.

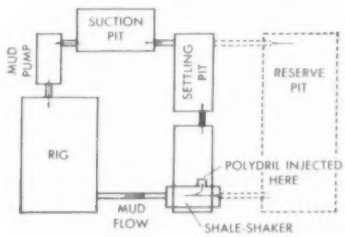
Polydril is, first, a powerful, efficient flocculating agent. But, of special importance, is the fact that Polydril comes to you in a semi-liquid state. This means that it is easy-to-mix, easy-to-use, with no waste or loss. There is no product on the market today quite like Polydril.

POLYDRIL IS EASY-TO-MIX

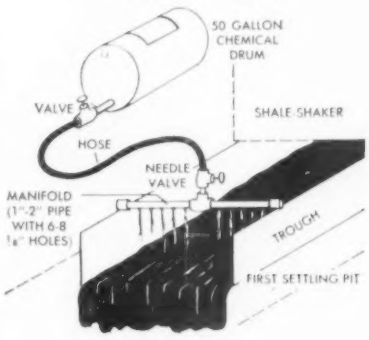
To illustrate the ease with which Polydril can be added to your drilling operation, here are the steps usually followed:

1. Stir the Polydril in the can to a uniform mix just as you would paint.
2. Mix a pint (approximately one-half mud cup or 1 to 1¼ pounds) of Polydril with an equal volume of diesel oil or kerosene.
3. Pour this mixture slowly and uniformly into a stream of water going into a 50-gallon chemical mixing drum. Either fresh water or brine may be used. This makes 50 gallons of treating solution.
4. Inject the treating solution directly into the mud stream between the shale shaker and the first settling pit. Disperse the solution as thoroughly as possible into the stream. A manifold arrangement has been found to be satisfactory for this purpose. (See sketch.) Also, if there is agitation in the mud

DIAGRAM OF FLOW SYSTEM SHOWING POINT AT WHICH POLYDRIL IS INJECTED



MANIFOLD ARRANGEMENT FOR INJECTION OF POLYDRIL



stream at this point, the Polydril will be better dispersed; and the solids will be flocculated more efficiently.

5. For best results, keep agitation at a minimum through rest of the mud system.

OTHER USES OF POLYDRIL

Other than as an aid in clear water drilling, Polydril has several additional applications. For example, it can be used:

To help settle mud pits after drilling operations are completed.

To clear muddy water for use as a fracturing fluid.

AVAILABILITY OF POLYDRIL

Polydril is available at all Dowell stations in handy 5-gallon re-usable cans with handles. Each can contains 50 pounds of Polydril.

New as it is, Polydril has already enjoyed wide success in hundreds of wells. The sum of its advantages—faster drilling, reduced rig time, increased bit and pump-liner life, reduced water requirements, mud savings, mixing ease—makes Polydril an important contribution to the progress of oil well drilling. With all these advantages, Polydril is surprisingly inexpensive; and a small amount goes a long way.

Investigate Polydril. For detailed information and prompt service, call any of the 165 Dowell offices and stations. In Canada, call Dowell of Canada, Ltd.; in Venezuela, United Oilwell Service. Dowell, Tulsa 1, Oklahoma.

*Dowell Trademark

Products for the oil industry

DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY

ACETYLENE FROM NATURAL GAS OR NAPHTHA

By Societe Belge de l'Azote-Kellogg

Success of the SBA-Kellogg acetylene processes—industry's most advanced approach to the continuous production of high purity C_2H_2—stems mainly from burners developed by Societe Belge de l'Azote.

Burner Type I for natural gas feed, for example, avoids pre-ignition or flashback when gas and oxygen are introduced at economic, elevated preheat temperatures; minimizes heat losses by maintaining flame stability at temperatures as high as 1400-1600K; optimizes yield and prevents overcracking through reaction chamber design; and continuously removes carbon in operation.

Full details on the SBA-Kellogg high purity acetylene processes—designed to use natural gas, naphtha or other liquid feedstocks, and on the process equipment, are contained in a new 6-page Kellogg folder and an 8-page reprint of a detailed article just published in a technical publication. Write Kellogg for your copies.

These folders tell the complete story of the SBA-Kellogg Acetylene Processes

KELLOGG

THE M. W. KELLOGG COMPANY

711 Third Avenue, New York 17, N.Y. *A Subsidiary of Pullman Incorporated*

The Canadian Kellogg Company Ltd., Toronto • Kellogg International Corp., London • Kellogg Pan American Corp., New York
Societe Kellogg, Paris • Companhia Kellogg Brasileira, Rio de Janeiro • Compania Kellogg de Venezuela, Caracas